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A taxonomic revision of the tube-web spiders of the genus *Ariadna* (Araneae: Segestriidae) in Tasmania

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Abstract

The genus *Ariadna* Audouin, 1826 is revised for Tasmania to include 13 species, ten of which are described as new: *Ariadna abbreviata* **sp. nov.**, *A. alta* **sp. nov.**, *A. amabilia* **sp. nov.**, *A. crypticola* **sp. nov.**, *A. ferrogrisea* **sp. nov.**, *A. fragilis* **sp. nov.**, *A. gonzo* **sp. nov.**, *A. muscosa* Hickman, 1929, *A. segmentata* Simon, 1893, *A. subnubilum* **sp. nov.**, *A. thylacinus* **sp. nov.** and *A. tigrina* **sp. nov.**. The species described in this manuscript exhibit high levels of sympatry.

Key words: Australia, DNA barcodes, morphology, new species, Synspermiata, taxonomy

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Introduction

Tube-web spiders of the family Segestriidae Simon, 1893 are primitive six-eyed spiders with simple, haplogyne female genitalia which lack external copulatory openings, and a simple male pedipalp consisting of an enlarged, globular bulb and a simple embolus (eg. Beatty 1970, Marsh *et al.* 2021). The segestriid leg orientation is characteristic, with the third leg directed forwards when resting (eg. Giroti and Brescovit 2018, Marsh *et al.* 2018). Segestriidae inhabit tubular webs constructed in crevices within and under bark, under logs, under rocks, in borer holes in wood and in burrows in the ground. The opening to these webs is a characteristic circular shape, often with radiating spurs of silk extending outwards (Grismado 2008, Giroti and Brescovit 2018, Marsh *et al.* 2018).

Segestriidae include five described genera and have a worldwide distribution, with two of these genera currently recorded from Australia; *Gippsicola* (three species) and *Ariadna* Audouin, 1826 (14 species). *Gippsicola raleighi* Hogg, 1900 is known from Western Australia, South Australia and Victoria and *G. lineata* Giroti and Brescovit, 2017, *G. minuta* Giroti & Brescovit, 2017 from Queensland and *G. robusta* Giroti & Brescovit, 2017 from New South Wales and Queensland (Giroti & Brescovit 2017).

Described species of *Ariadna* are known from all Australian states and territories, apart from the Northern Territory, however undescribed species have been recorded from that territory (J. Marsh, unpubl. data). Prior to this study, the genus *Ariadna* comprised 14 described species in Australia: *A. burchelli* (Hogg, 1900), *A. clavata* Marsh, Baehr, Glatz & Framenau, 2018, *A. decatetracantha* Main, 1954, *A. dysderina* Koch, 1873, *A. kiwirrkurra* Baehr and Whyte, 2016, *A. major* Hickman, 1929, *A. montana* Rainbow, 1920, *A. muscosa* Hickman, 1929, *A. natalis* Pocock, 1900, *A. octospinata* (Lamb, 1911), *A. phantasma* Marsh, Hudson & Framenau, 2021, *A. segmentata* Simon, 1893, *A. tangara* Marsh, Baehr, Glatz & Framenau, 2018, *A. thyrianthina* Simon, 1908. Currently three species are known from Tasmania: *Ariadna major* Hickman, 1929 (only female known), *A. muscosa* Hickman, 1929 (male and female) and *A. segmentata* Simon, 1893 (female described by E. Simon; Hickman 1967 subsequently described the male).

Tasmania is an island state of ca. 55,000 km^2 in area situated approximately 250 km south-east off the mainland Australian coast. Bass Strait now isolates the state from the mainland, but land bridges have existed in the past (Adeleye *et al.* 2021). Two larger island groups remain, King Island to the north-east and the Furneaux Group in the north-west. Compared to the Australian mainland, Tasmania has a more temperate climate with between 500 and 2,500 mm rainfall per year, unevenly distributed over the state; the highest rainfall in the western half of the island (Williams 1974). Snow may fall regularly in winter at altitudes in excess of 600 m. Tasmania is comparably mountainous—the highest peak being Mt Ossa (1,617 m)—comprising a large central plateau, a north-eastern plateau and a series of ridge-like mountains stretching the length of the western half of the island. It is the only part of Australia that had significant glaciation during the Pleistocene shaping its flora and fauna (Williams 1974). There are a total of nine biogeographic regions in Tasmania, two of which are represented by the above-mentioned island groups (http://environment.gov.au/land/nrs/science/ibra; accessed 26 August 2021).

The common spiders of Tasmania were reviewed by Hickman (1967), but no further comprehensive taxonomic treatments have been compiled on the arachnofauna of the state since that monograph. Douglas (2021) maintains a website of Tasmanian spiders (http://tasmanianspiders.info; accessed 26 August 2021). Based on taxonomic literature, at least 309 described species of spiders have been reported from Tasmania, 60 of which described by V.V. Hickman between 1927 and 1981 (VWF unpublished data). Due to its isolation and unique climate and geology in comparison to the mainland of Australia, Tasmania harbours some unique spiders. The endemic Tasmanian Cave Spiders, *Hickmania troglodytes* (Higgins & Petterd, 1883), is probably the most enigmatic of all (i.e., Doran *et al.* 1999) and has recently been transferred from the Austrochilidae Zapfe, 1955 to the Gradungulidae Forster, 1955 (Kulkarni & Hormiga in press).

This paper constitutes a revision of *Ariadna* in Tasmania, describing 10 new species based upon morphology, supported by molecular analyses where possible and documenting species' distributions in Tasmania.

Methods

Morphological analyses. Descriptions of external morphological features, macrosetae notation and imaging methods follow Marsh *et al.* (2018). Dissection of the female genitalia follow methods employed by Platnick *et al.* (1999) and Grismado (2008). Morphological examination of specimens was conducted using a Nikon SMZ18 and

a Zeiss Stemi 305 stereomicroscope. Images in different focal planes (10–20) were taken using a Leica MZ16A microscope and Leica DFC 500 camera, AutoMontage Pro Version 5.2 was used to combine them to a single image. Measurements were taken digitally using AutoMontage Pro Version 5.2 and are given in millimeters.

Type material examined: *Ariadna clavata* holotype and paratype (SAM NN29861, NN29862); *Ariadna dysderina* holotype—images (ZMH A0000801); *A. kiwirrkurra* holotype, paratype (WAM T138053, WAM T138054, WAM T138052); *Ariadna major* holotype—images (QVMAG QVM13:7361); *A. montana* holotype (SAM NN179); *A. muscosa* syntypes male and female—images (both QVMAG QVM13:7339); *Ariadna octospinata* holotype (QM W2119); *Ariadna phantasma* holotype, paratype (WAM T152196, T152192); *Ariadna segmentata* holotype—images (MNHN AR16175); *Ariadna tangara* holotype and paratype (SAM NN29863, NN29864).

The taxonomic section lists species in alphabetical order.

The following abbreviations are used throughout this text: ALE, anterior lateral eyes; AME, anterior median eyes; PLE, posterior lateral eyes; PME, posterior median eyes; STC, superior tarsal claw; ITC inferior tarsal claw; d, dorsal; p, prolateral; r, retrolateral; v, ventral; pv, proventral; rv, retroventral; TMAG, Tasmanian Museum and Art Gallery; QM, Queensland Museum, QVMAG, Queen Victoria Museum and Art Gallery; AM, Australian Museum; Tas, Tasmania; N, north; E, east; S, south; W, west.

Molecular analyses. All tissue samples (from a single leg) were DNA (mtDNA COI) barcoded using single-molecule real-time sequencing (SMRT) (Hebert *et al.* 2018) in the PacBio Sequel platform (Pacific Biosciences, Menlo Park, CA, USA) at the Canadian Centre for DNA Barcoding (CCDB), in the University of Guelph, Ontario, Canada. Sequences were screened via NCBI BLAST search for potential contamination, but were also checked as part of CCDB sequencing quality controls to verify the correct COI codon translation into proteins and check for potential presence of numts by looking for stop codons, insertions and deletions, errors and inconsistencies. The resulting sequences were aligned in Sequencher v5.1 (http://www.genecodes.com) to produce a 654 bp alignment and nucleotide sequence divergence was calculated using uncorrected p-distances as implemented in MEGA X (Kumar *et al.* 2018). All new sequences, along with the voucher data, images, were deposited in BOLD (http://www.boldsystems.org/) and the sequences were deposited in GenBank (https://www.ncbi.nlm.nih.gov/).

Results

We here describe ten new species of *Ariadna* and redescribe two, resulting in 13 species of *Ariadna* for Tasmania (Table 1). Five of the species are known only from males, two only from females and six from both sexes. Species were distributed across Tasmania, with most collections occurring from the east of the state and centred around areas of human occupation.

TABLE 1. Tasmanian species of *Ariadna.*
S, E, N, W—south, east, north, west.

Species	Sex described in this manuscript	Distribution (Tas)
A. abbreviata **sp. nov.**	♂, ♀	SE
A. alta **sp. nov.**	♀	E, W
A. amabilia **sp. nov.**	♂, ♀	N, S, W
A. crypticola **sp. nov.**	♂	Bruny Island
A. ferrogrisea **sp. nov.**	♂, ♀	SE
A. fragilis **sp. nov.**	♂	Mount Chappell Island
A. gonzo **sp. nov.**	♂	NE
A. major Hickman, 1929	specimens not available for redescription; only known from ♀	SE
A. muscosa Hickman, 1929	♂	NE
A. segmentata Simon, 1893	♂, ♀	widespread
A. subnubilum **sp. nov.**	♂	SW
A. thylacinus **sp. nov.**	♂, ♀	SE
A. tigrina **sp. nov.**	♂, ♀	E

Of the tissues submitted for molecular analyses, three were successfully sequenced. We also include one sequence from GenBank (*A. insidiatrix* Audouin, 1826; KY017904) and one species we sequenced (*A. clavata* from Kangaroo Island, South Australia). Sequence divergence (P-distance) comparisons among the *Ariadna* species reveal interspecific sequence divergences range from 11.6% between *A. muscosa* and *A. subnubilum* **sp. nov.** to 20.7% between *A. insidiatrix* and *A. subnubilum* **sp. nov.** (see Table 2). Pairwise comparisons between our new *Ariadna* species all fall within the ranges identified for the two known species, *A. insidiatrix* and *A. muscosa* (Table 2).

TABLE 2. MtDNA (COI) sequence divergence (P-distance) comparisons among the *Ariadna* species.

		Specimen ID	BOLD Process ID	1	2	3	4
1	Ariadna insidiatrix	KY017904	GACS3272-19				
2	*Ariadna muscosa*	QVM:2020:13:0110	OZBOL2576	0.190			
3	*Ariadna subnubilum* **sp. nov.**	TMAG J6266	OZBOL2584	0.207	0.116		
4	*Ariadna clavata*	jm0026JRM	OZBOL2579	0.199	0.153	0.155	
5	*Ariadna tigrina* **sp. nov.**	TMAG J4139	OZBOL2585	0.187	0.133	0.141	0.153

Taxonomy

Family Segestriidae Simon, 1893

Genus *Ariadna* Audouin, 1826

Pylarus Hentz, 1842 (synonymised by Beatty 1970)
Macedonia Hogg, 1900 (synonymised by Rainbow 1920)
Segestriella Purcell, 1904 (synonymised by Beatty 1970)

Diagnosis. *Ariadna* differs from *Gippsicola* by the labium being narrowed distally (Figs 6b, 8b cf. fig. 1c Giroti & Brescovit 2017), by the labrum lacking dorsal median setae and being longer than the labium (Fig. 13b cf. 5b Giroti & Brescovit 2017); by the presence of a basal transverse ridge on the chelicerae (Figs 8d, 13d, cf. fig. 5a Giroti & Brescvoit 2017); by the posterior eyes being slightly recurved or straight (Figs 1d, 3d, 6d cf. fig 1a Giroti & Brescvoit 2017), by the presence of tubular invaginations on the posterior receptaculum (fig. 11d Giroti & Brescovit 2018 cf. fig. 7d Giroti & Brescvoit 2017) and by the tarsus of the female palp having five or more macrosetae (Fig. 39d).

Key to the *Ariadna* of Tasmania

Males
(Males unknown for *Ariadna alta* **sp. nov.**)

1 Abdomen with clear, well defined dark transverse markings on a pale cream background (Figs 1a, 8a, 19a, 21a, 26a, 33a, 37a) 2
- Abdomen dark, with indistinct pale transverse lines, posteriorly (Figs 12a, 15a, 23a) 8
- Abdomen with no transverse markings, but with a mottled light grey and dark grey colouration; species with a rounded oblong pedipalp bulb (Figs 31a, 32a) . . . . . *Ariadna subnubilum* **sp. now.**
2 Metatarsus of leg I with a row of three shortened, blunt prolateral macrosetae apically (Fig. 1f, g) . . . . . *Ariadna abbreviata* **sp. nov.**
- Macrosetae on metatarsus I of equivalent length to other macrosetae 3
3 Embolus arising medially from the pedipalp bulb and hooked at around the midpoint to ¾ of the embolus length (Figs 22a, 27a) 4
- Embolus arising from the edge of the pedipalp bulb and hooked apically (Figs 2a, 9a, 20a) 5
4 Embolus short, thickened and hooked at around its midpoint (Fig. 27a). . . . . *Ariadna segmentata* Simon, 1893
- Embolus elongate and hooked at around ¾ its length (Fig. 23a) . . . . . *Ariadna gonzo* **sp. nov.**
5 Pedipalp bulb squared, or rounded oblong in lateral view (Figs 9a, 34a) 6

-	Pedipalp bulb pyramidal in lateral view (Figs 2a, 20a)	7
6	Pedipalp bulb rounded square and on lateral view is distinctly bulbous dorsally. Embolus long, slender and smoothly curved along its length, to a rounded apical hook (Fig. 9a)	*Ariadna amabilia* **sp. nov.**
-	Pedipalp bulb rounded oblong. Embolus elongate, curved, with a short sinuous section just posterior to a distinct apical hook (Fig. 35a)	*Ariadna thylacinus* **sp. nov.**
7	Macrosetae of tibia and metatarsus I paired (Fig. 19f, g, h)	*Ariadna fragilis* **sp. nov.**
-	Macrosetae of tibia and metatarsus I non-sequential (Fig. 37f, g, h)	*Ariadna tigrina* **sp. nov.**
8	Retrolateral preening comb on leg IV with 7 or 8 macrosetae (Figs 15e, 23e)	9
-	Retrolateral preening comb on leg IV with 5 macrosetae (Fig. 13e)	*Ariadna crypticola* **sp. nov.**
9	Embolus strongly curved, with well-defined apical hook (Fig. 16a, b)	*Ariadna ferrogrisea* **sp. nov.**
-	Embolus weakly curved, with only slight apical hook (Fig. 25a, b)	*Ariadna muscosa* Hickman, 1929

Females

(Females unknown for *A. crypticola* **sp. nov.**, *A. fragilis* **sp. nov.**, *A. gonzo* **sp. nov.**, *A. subnubilum* **sp. nov.**; species delineation of females, in most cases, requires examination of internal genitalia, this was not possible for *A. major*, *A. muscosa* or *A. thylacinus* **sp. nov.**, so these species have not been included in this key).

1.	With a distinct row of dual prolateral macrosetae on tibia I and 12 pairs of macrosetae on tarsi I (Fig. 6f, g)	*A. alta* **sp. nov.**
-	not with the above combination, with row of prolateral macrosetae on tibia I not distinctly dual and with fewer than 12 paired macrosetae on tarsi I (Figs 3g, 10g, 17g, 28g, 36g, 39g)	2
2.	In lateral view, anterior receptaculum with 3 or 4 apical finger-like projections (Fig. 11b)	*A. amabilia* **sp. nov.**
-	Anterior receptaculum not as above, with lateral projections (e.g. Fig. 4b), or with apical projections that are other than 3 or 4 and finger-like (e.g. Figs 29a, 40a)	3
3.	In ventral view, anterior receptaculum elongate, with distinct hook at apex (Fig. 29a)	*Ariadna segmentata* Simon, 1893
-	Anterior receptaculum without distinct hook at apex (e.g. Figs 11a, 7a)	4
4.	In ventral view anterior receptaculum strongly sinuous (Fig. 40a)	*A. tigrina* **sp. nov.**
-	Anterior receptaculum may be curved, or hooked in ventral view, but not strongly sinuous (e.g. Figs 11a, 18a, 29a)	5
5.	Abdomen with distinct transverse markings (Fig. 3a)	*Ariadna abbreviata* **sp. nov.**
-	Abdomen dark, with indistinct pale transverse lines, posteriorly (Fig. 17a)	*Ariadna ferrogrisea* **sp. nov.**

Ariadna abbreviata **sp. nov.**

Figs 1a–h, 2a-c, 3a-h, 4a–b, 5

http://zoobank.org/NomenclaturalActs/874d7db6-1113-4ef2-9750-dffe0411b9bc

Type material. *Holotype* ♂. AUSTRALIA: *Tasmania:* Domain, Hobart, 42.87°S, 147.33°E; 20 May 1948, J.L. & V.V. Hickman (AM KS.131055).

Paratype ♀. Same data as holotype (KS.131057).

Other material examined. Tasmania: 3 ♂, 1 ♀, Domain, Hobart, 42.87°S, 147.33°E, 31 Aug 1942, V.V. Hickman (AM KS.29193); 17 ♂, 10 ♀, same locality, 20 May 1948, V.V. Hickman (AM KS.29196); 1 #m, Mount Rumney, 42.85°S, 147.44°E, 6 June 1963, J.L. & V.V. Hickman (AM KS.29175).

Etymology. The specific epithet is a Latin adjective, meaning ‘shortened’, and refers to the row of three shortened and blunt macrosetae, prolaterally on metatarsus I of this species.

Diagnosis. *Ariadna abbreviata* **sp. nov.** is closest to *A. burchelli*, *A. clavata*, *A. fragilis* **sp. nov.** and *A. tigrina* **sp. nov**. It can be differentiated from *A. burchelli* by the presence of macrosetae on tibia of females (Fig. 3f, g, h cf. plate 8, fig. 4, Hogg 1900); from *A. clavata*, *A. fragilis* **sp. nov.** and *A. tigrina* **sp. nov.** by the presence of a row of three short and blunt prolateral macrosetae apically on metatarsus I of males, which are around 1/3 the length of the other macrosetae on metatarsus I (Fig. 1f, g cf. Figs 20f, g, 37f, g).

Description. ♂ (based on holotype; AM KS.131055). Total length 5.0.

Colour in ethanol: Carapace dark red-brown, with scattered sparse brown setae, border a darker brown; sternum orange brown, with regular darker inter-coxal patches; sparse, scattered long dark setae, denser around edges, labium, maxillae and chelicerae darker orange brown; abdomen dorsally with about nine dark grey, clearly defined chevrons, interspersed with pale cream; abdomen ventrally pale cream, with dark grey median band. Legs golden brown, with sparse dark setae (Fig. 1a–c)**.**

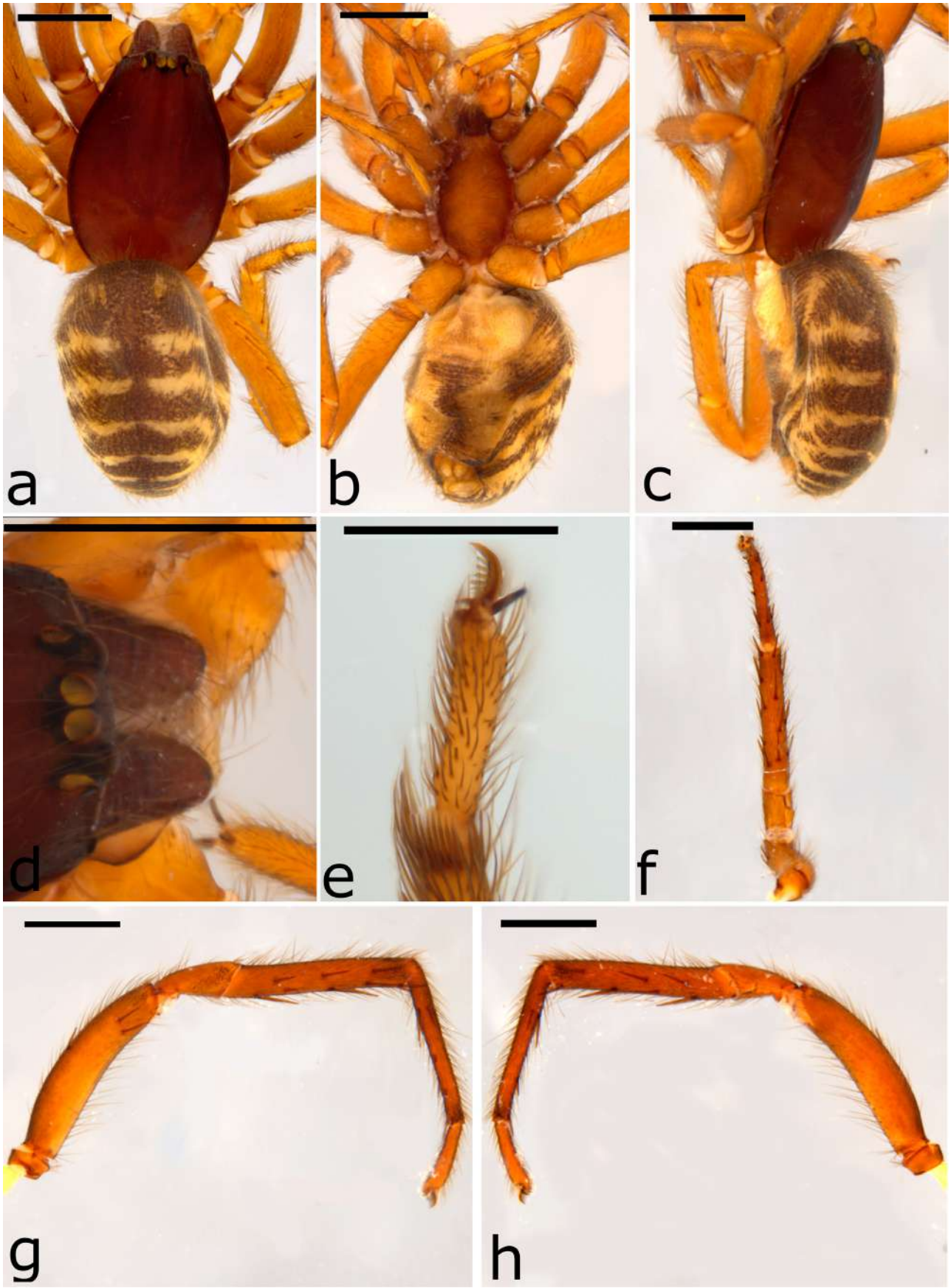

FIGURE 1. *Ariadna abbreviata* **sp. nov.** ♂ holotype (AM KS.131055); Domain, Hobart (Tasmania); a habitus, dorsal view; b same, ventral view; c same, lateral view; d eyes, dorsal view; e left metatarsus IV, preening comb, retrolateral view; f left leg I, ventral view; g same prolateral view; h same retrolateral view. Scale bars a–d, f–h = 1mm, e = 0.5mm.

FIGURE 2. *Ariadna abbreviata* **sp. nov.** ♂ holotype (AM KS.131055); Domain, Hobart (Tasmania); a left pedipalp, prolateral view; b same, retrolateral view; c same, dorsal view. Scale bar = 1mm.

Cephalothorax: 2.4 long, 1.7 wide, 1.4 high. Carapace oval, narrower anteriorly, edges gently undulating, fovea a shallow indentation (Fig. 1a), from lateral view carapace gently domed, highest near fovea (Fig. 1c). Labium narrowed anteriorly, about ¾ length of maxillae; chelicerae with basal transverse ridge, retromargin with single tooth, promargin with three teeth; sternum oval, with precoxal triangles and with smaller, broadly triangular intercoxal extensions (Fig. 1b). Eye group 0.6 wide; 0.5 of the width of the anterior carapace; posterior eye row slightly recurved (Fig. 1d).

Abdomen: 2.6 long. Covered in dense, golden-brown setae (Fig. 1b).

Legs: Leg length ratio I>II>IV>III. Leg I femur 1.6, patella 0.6, tibia 1.9, metatarsus 1.6, tarsus 0.6. Leg II femur 1.5, patella 0.5, tibia 2.0, metatarsus 1.3, tarsus 0.8. Leg III femur 1.5, patella 0.4, tibia 1.0, metatarsus 1.1, tarsus 0.6. Leg IV femur 1.9, patella 0.5, tibia 1.2, metatarsus 1.1, tarsus 0.5. Femur I bowed in dorsal view. Tarsus I slightly bowed ventrally in lateral view, broader at apex than at base; tarsi II – IV straight and same width for length. Metatarsus IV with prolateral row of three blunt and shortened macrosetae (around 1/3 of length of other macrosetae on metatarsus I) apically. Macrosetae: Leg I Femur dp2ap; tibia p1-1-1, pv1-1-1-1-1ap, rv1-1-1-1-1ap, r1-1-1; metatarsus v1, pv1-1(blunt)-1(blunt)-1(blunt), rv1-1(blunt)-1ap, r1. Leg II femur d1-1/0, dp1ap; tibia p1-1-2, pv1ap, rv1-1-1ap, r1-1-1 (left); p1-1-2, pv1ap, rv1-1-1ap (right); metatarsus p1, pv1-1-1ap, rv1-1-1-1ap, r1 (left and right). Leg IV femur d1-1-1; tibia pv1ap, rv1-1, r1; metatarsus rv1-1-1-1ap. Retrolateral distal preening comb with 7 spines, of equal length (Fig. 1e). STC legs I, II with 9 teeth, ITC with long, thin tooth. Tarsi with sparse distal ventral scopulose setae.

Pedipalp: Pedipalp tibia about 0.7 width to length, cymbium with anterior prolateral extension, scopulose setae anteriorly; bulb large, globular in lateral view; embolus long, thin and hooked apically (Fig. 2a–c).

Description. ♀ (based on paratype; KS.131057). Total length 6.6.

Colour in ethanol: Carapace uniform reddish-brown, with fine darker line around edges; sparse scattered setae, denser towards around eye group; sternum orange brown, with moderately long black setae, denser towards edges; labium darker brown, paler apically; maxillae orange brown, paler apically; chelicerae darker red-brown with dense, long, black setae. Abdomen dorsally dark with eight dark grey, clearly defined chevrons, broader and connecting at midpoints and extending laterally and ventrally, interspersed with cream; ventrally cream with linear dark grey median line. Legs golden brown, legs I, II with dense setae, III, IV less dense (Fig. 3a–c).

Cephalothorax: 2.9 long, 1.8 wide, 1.7 high. Carapace oval, with broad, square 'neck' anteriorly, anterior edge straight, fovea a shallow indented pit (Fig. 3a); lateral profile domed, highest point just posterior to eye group (Fig. 3c). Labium narrowed anteriorly, about ¾ length of maxillae; chelicerae broad, robust with basal transverse ridge, retromargin with single tooth, promargin with three teeth, sternum elongated oval with precoxal triangles and with smaller, rounded intercoxal extensions (Fig. 3b). Eye group 0.6 wide; 0.5 of the width of the anterior carapace; posterior eye row slightly recurved (Fig. 3d).

Abdomen: 3.7 long. Covered in short, dense setae (Fig. 3a).

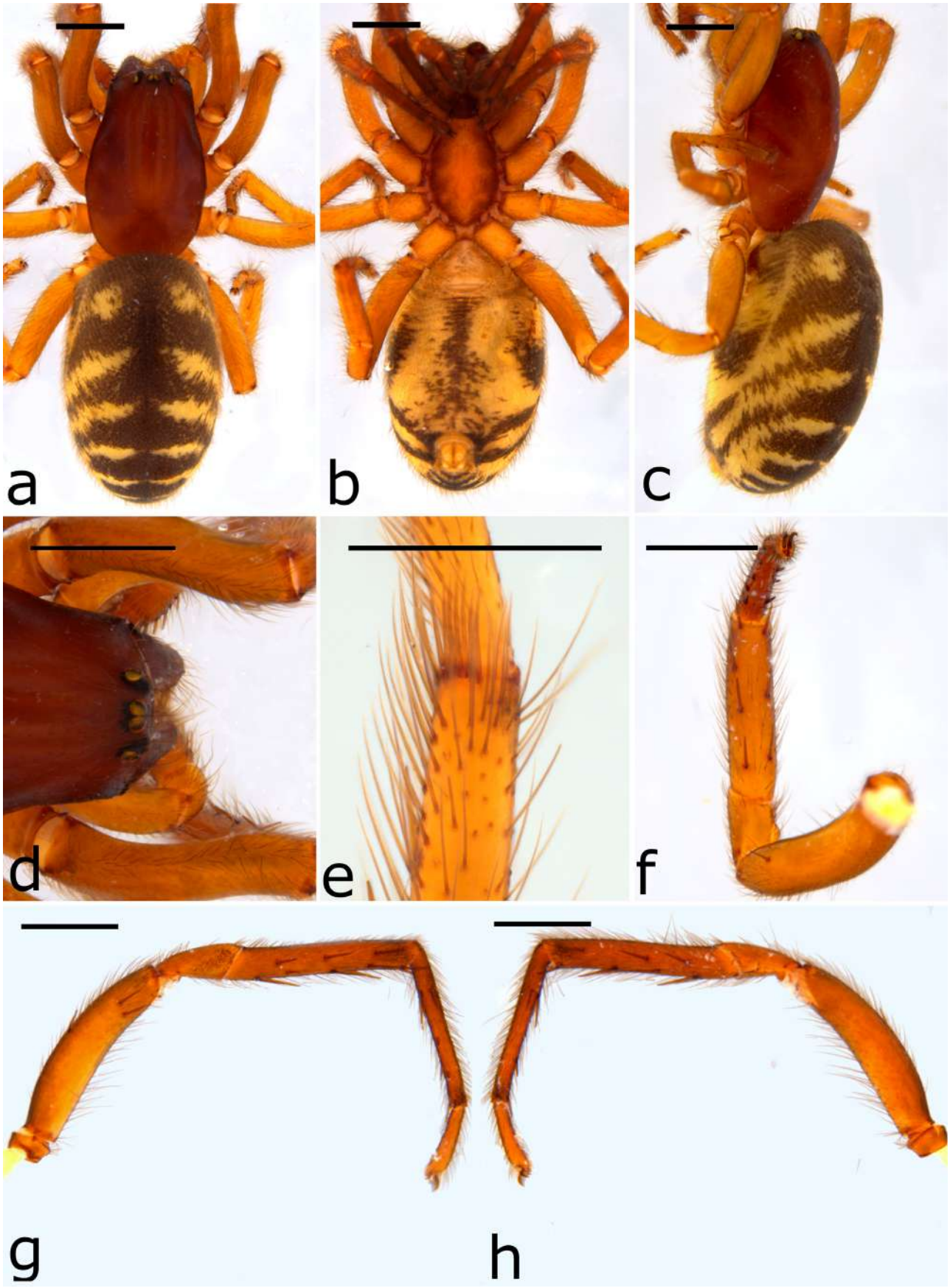

FIGURE 3. *Ariadna abbreviata* **sp. nov.** ♀ paratype (AM KS.131057); Domain, Hobart (Tasmania); a habitus, dorsal view; b same, ventral view; c same, lateral view; d eyes, dorsal view; e left metatarsus IV, preening comb, retrolateral view; f left leg I, ventral view; g same prolateral view; h same retrolateral view. Scale bars a–d, f–h = 1mm, e = 0.5mm.

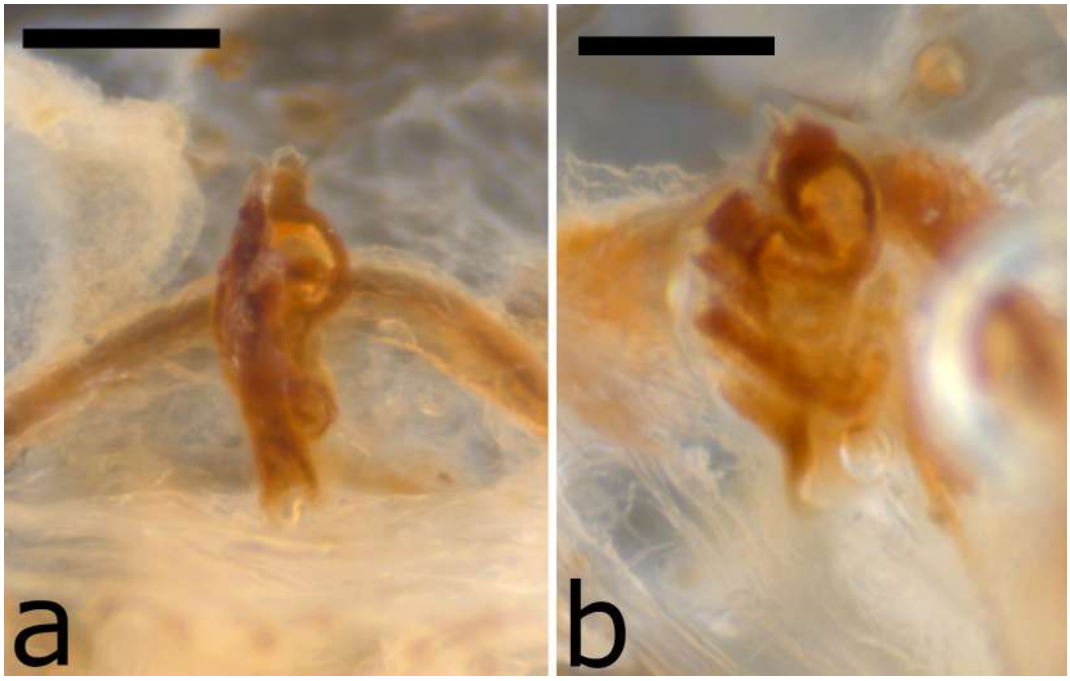

FIGURE 4. *Ariadna abbreviata* **sp. nov.** ♀ (AM KS.29196); Domain, Hobart (Tasmania); anterior receptaculum a. ventral view; b. same lateral view. Scale bars = 0.2mm.

Legs: Leg length ratio I>IV>II>III. Leg I femur 1.8, patella 0.8, tibia 1.4, metatarsus 1.1, tarsus 0.5. Leg II femur 1.6, patella 0.7, tibia 1.0, metatarsus 0.8, tarsus 0.5. Leg III femur 1.2, patella 0.5, tibia 0.8, metatarsus 0.8, tarsus 0.5. Leg IV femur 1.6, patella 0.8, tibia 1.2, metatarsus 1.1, tarsus 0.6. Macrosetae: Leg I femur: dp1ap; tibia pv1-1-1/0-1ap, rv1-1-0/1-1ap; metatarsus v2-2-1-2-2. Leg II femur dp1ap; tibia rv1-1-1ap, pv1ap; metatarsus pv1, v2-2-2. Leg IV tibia pv1ap, v1-1-1; metatarsus pv1-1-1ap. Retrolateral distal preening comb with 7 spines (Fig. 3e). STC I, II with 9 teeth, ITC with small tooth. Tarsi with distal ventral setae.

Pedipalp: Dense clusters of macrosetae prolaterally on tarsus and tibia. Scopulose setae on tarsus.

Genitalia: Anterior receptaculum bilobed, in ventral view shape simple, with globular apex (Fig. 4a–b).

Variation. All males examined had a row of three short, blunt macrosetae prolaterally on metatarsus I. Specimens were consistent in colour and form of transverse abdominal markings and showed little variation in size.

Distribution. Known from the Hobart area, in the south-east of Tasmania (Fig. 5).

***Ariadna alta* sp. nov.**

Figs 5, 6a–h, 7a–b

http://zoobank.org/NomenclaturalActs/dbcc5fdd-bee0-444a-87eb-5d01fa0f19cf

Type material. *Holotype* ♀. AUSTRALIA: *Tasmania:* Frenchman's Cap Track, west Tasmania, 42.27 °S, 145.83°E, under log/bark, *Nothofagus* forest, coll. L.J. Boutin, 26 December 1997 (QVMAG QVM.13.24065).

Other material examined. AUSTRALIA: *Tasmania:* 1 ♀ Frenchman's Cap, coll. B. McCausland, April 1980 (QVMAG QVM:2020:13:0106); 1 ♀, Evercreech Forest Reserve, 41.421667°S, 148.08111°E, coll. L.J. Boutin, 24 June 2003 (QVMAG QVM:2020:13:0115); 3 ♀, Mount Hobbs, 42.50°S, 147.59°E, V.V. Hickman, 15 May 1928 (AM KS.29180).

Etymology. The specific epithet is a Latin adjective, meaning 'high' and refers to the elevation of the known localities.

Diagnosis. *Ariadna alta* **sp. nov.** is most similar to *A. amabilia* **sp. nov**., *A. segmentata* and *A. thylacinus* **sp. nov**. It can be differentiated from these by the presence of a proventral dual row of macrosetae on tibia I of females (Fig. 6f, 6g cf. Figs 10f, g; 28f, g; 36f, g); by the elevated, domed cephalothorax, being highest just posterior to the eye group (Fig. 6c cf. Figs 10c, 28c, 36c) and by the female genitalia, with the anterior receptaculum having three or

four distinct anterior projections (Fig. 7a–b cf. Figs 11a–b, 29a–b; 37a–b). *Ariadna alta* **sp. nov.** has been recorded from the type locality of *A. major* Hickman 1929, Mount Hobbs, SE Tasmania. It is clearly distinguished from *A. major* by the presence of transverse abdominal chevrons in *A. alta* **sp. nov.** (Fig. 6a), by the leg length ratio, which is II>I>III>IV in *A. alta* **sp. nov.**, but is I>II>IV>III in *A. major* and by the overall larger size of *A. major*, which is 16mm long, as opposed to 10.8mm in *A. alta* **sp. nov.**

Description. ♀ (based on holotype; QVMAG QVM.13.24065). Total length 10.8.

Colour in ethanol: Carapace dark, reddish brown, darker around edges, with a pale area centrally demarking raised caput, beginning anteriorly of fovea and bordered by darker red brown; darkened median line running from fovea anteriorly and extending to between half distance of fovea to eye group. Sparse scattered setae, denser towards lateral edges and anteriorly. Sternum red-brown, with moderately long, scattered dark setae; labium darker brown, paler apically; maxillae orange brown, paler apically; chelicerae dark brown with dense, long, black setae. Abdomen with metallic sheen, dorsally grey, with faint paler, not well-defined chevrons; ventrally grey with mottled paler cream patches; book lungs yellow cream. Legs red brown, covered with setae (Fig. 6a–c).

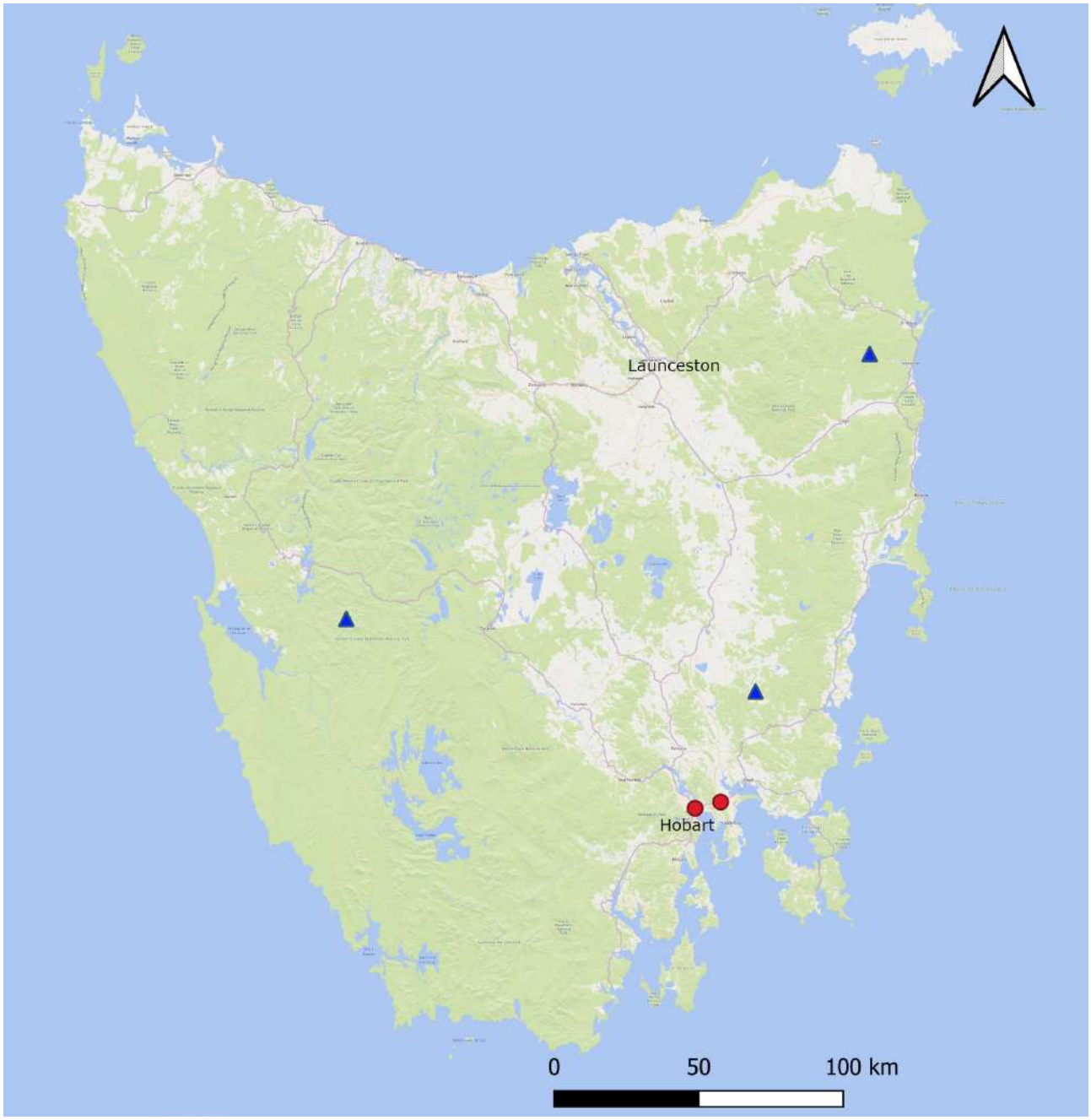

FIGURE 5. Distribution of *Ariadna abbreviata* **sp. nov.** (red dots) and *Ariadna alta* **sp. nov.** (blue triangles).

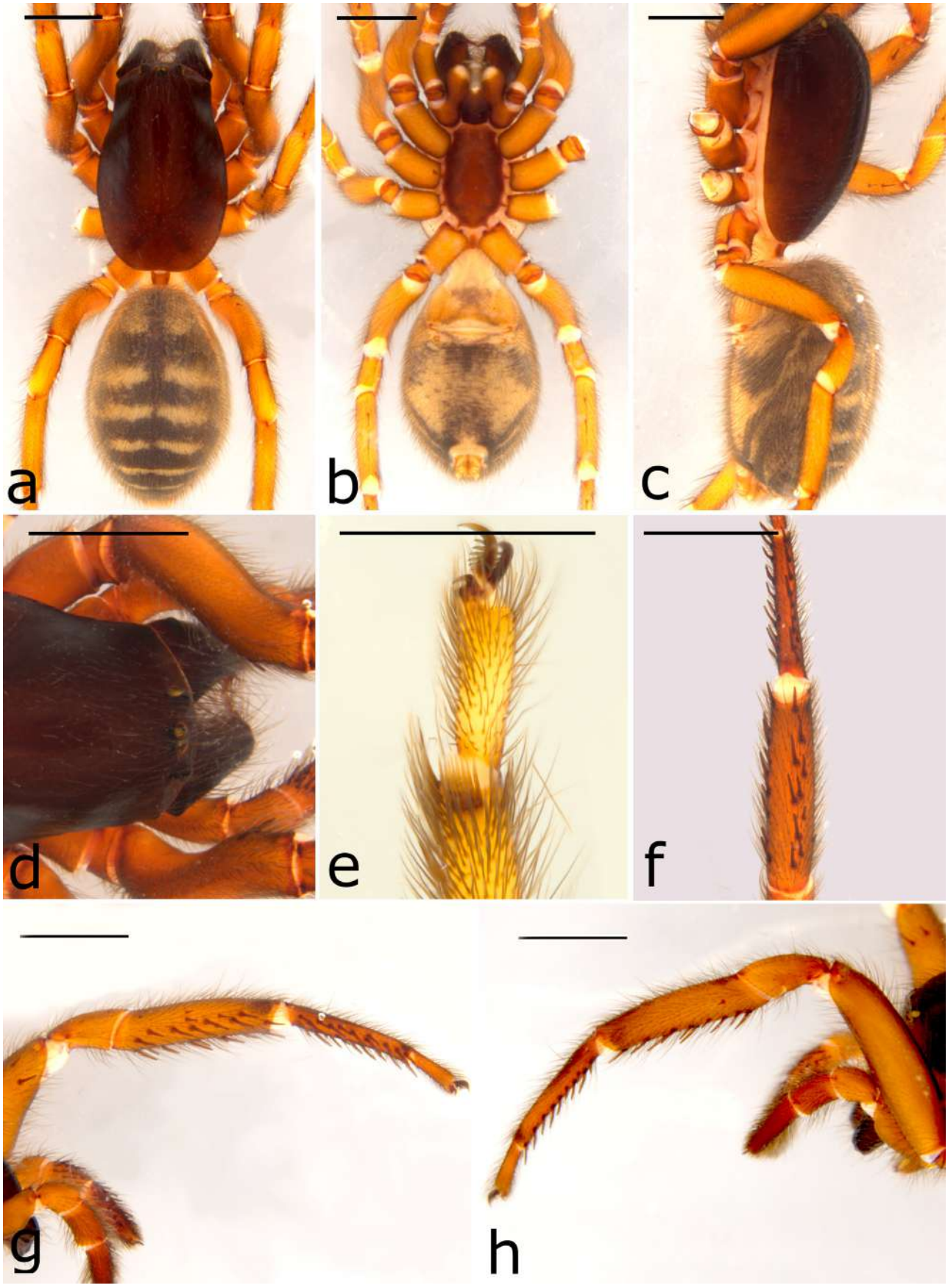

FIGURE 6. *Ariadna alta* **sp. nov.** ♀ holotype (QVMAG QVM.13.24065); Frenchman's Cap Track (Tasmania); a habitus, dorsal view; b same, ventral view; c same, lateral view; d eyes, dorsal view; e left metatarsus IV, preening comb, retrolateral view; f left leg I, ventral view; g same prolateral view; h same retrolateral view. Scale bars a–d, f–h = 2mm, e = 1mm.

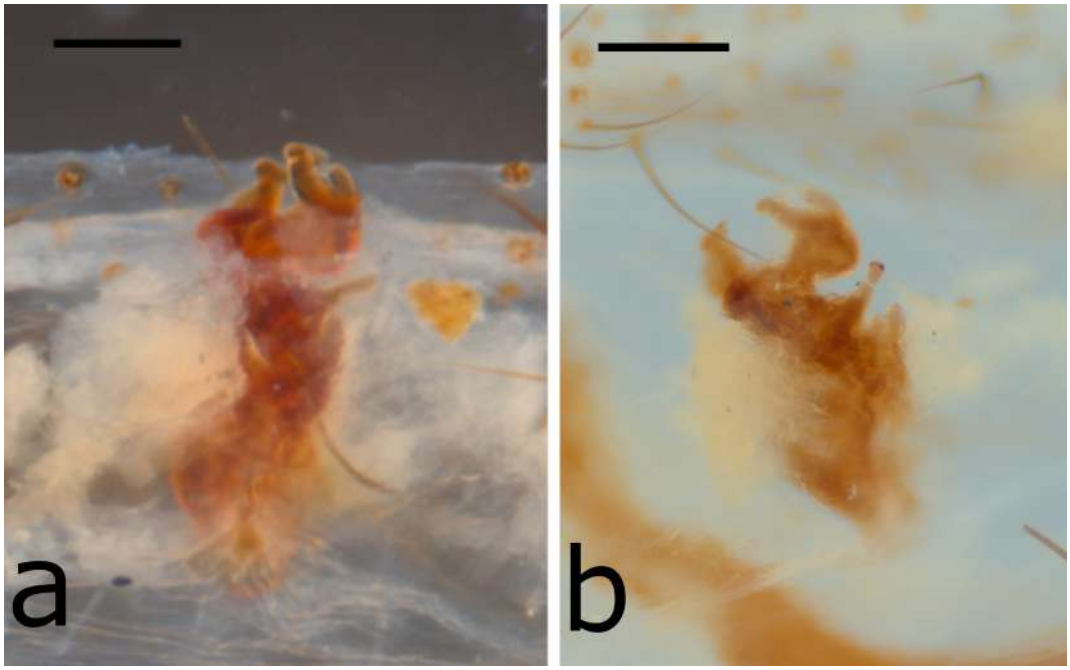

FIGURE 7. *Ariadna alta* **sp. nov.** ♀ (QVMAG QVM.2020.13.0106); Frenchman's Cap Track (Tasmania); anterior receptaculum a. ventral view; b. same lateral view. Scale bars = 0.2mm.

Cephalothorax: 5.4 long, 3.3 wide, 3.6 high. Carapace rounded rectangular, with broad, square 'neck' anteriorly, anterior edge convex, posteriorly with defined median indent, fovea a shallow slit (Fig. 6a); lateral profile domed, highest point at fovea (Fig. 6c). Labium narrowed anteriorly, about ¾ length of maxillae. Chelicerae broad, robust with basal transverse ridge, retromargin with single tooth, promargin with three teeth; sternum elongated oval with defined precoxal triangles and with rounded triangular intercoxal extensions (Fig. 6b). Eye group 0.6 wide, 0.5 of the width of the anterior carapace; posterior eye row slightly recurved, eyes small, three pairs of eyes widely separated (Fig. 6d).

Abdomen: 5.6 long. Covered in fine dense setae (Fig. 6a).

Legs: Leg length ratio: II>I>III>IV. Leg I femur 3.1, patella 1.6, tibia 2.9, metatarsus 2.0, tarsus 0.7. Leg II femur 2.8, patella 1.7, tibia 2.8, metatarsus 2.3, tarsus 0.8. Leg III femur 2.4, patella 1.7, tibia 2.8, metatarsus 2.4, tarsus 0.9. Leg IV femur 2.9, patella 1.6, tibia 2.5, metatarsus 2.1, tarsus 1.0. Femur I bowed in dorsal view. Macrosetae*:* Leg I femur dp2ap; tibia pv1, v2-2-2, pv1, rv1, v2, pv1, v2ap*;* metatarsus pv1-1-1, v2-2-2-2-2-1-2ap, rv1. Leg II femur dp1ap*;* tibia p1-2, pv1ap, rv1-1-1-1-1ap*;* metatarsus 2-2-1-2-1-2-1-2ap. Leg IV femur d1-1; tibia p1ap, v1-1/0; metatarsus rv1-1-1-1ap. Retrolateral distal preening comb with 8 macrosetae with two long macrosetae adjacent (Fig. 6e). STC I, II with 9 teeth, ITC with small tooth. Tarsi with distal ventral scopulae .

Pedipalp: Pedipalp with single, toothless claw. Tarsi and tibia with dense clusters of proventral macrosetae. Tarsi scopulate .

Genitalia: Anterior receptaculum bilobed, with several finger-like projections in the mid-point and apically (Fig. 7a–b).

Variation. Specimens examined were consistent in colour and form of transverse abdominal markings and showed little variation in size. Pattern and number of macrosetae were consistent for tibia and metatarsus I.

Distribution. Known from locations across Tasmania (Fig. 5).

***Ariadna amabilia* sp. nov.**

Figs 8a–h, 9a–c, 10a–h, 11a–b, 12

http://zoobank.org/NomenclaturalActs/c2702949-d830-4fea-bf7f-d35d51dbad7d

Type material. *Holotype* ♂. AUSTRALIA: *Tasmania:* Cornelian Bay, 42.27 °S, 145.83°E, in burrow in bank, coll. V.V. Hickman, 28 August 1930 (AM KS.131051).

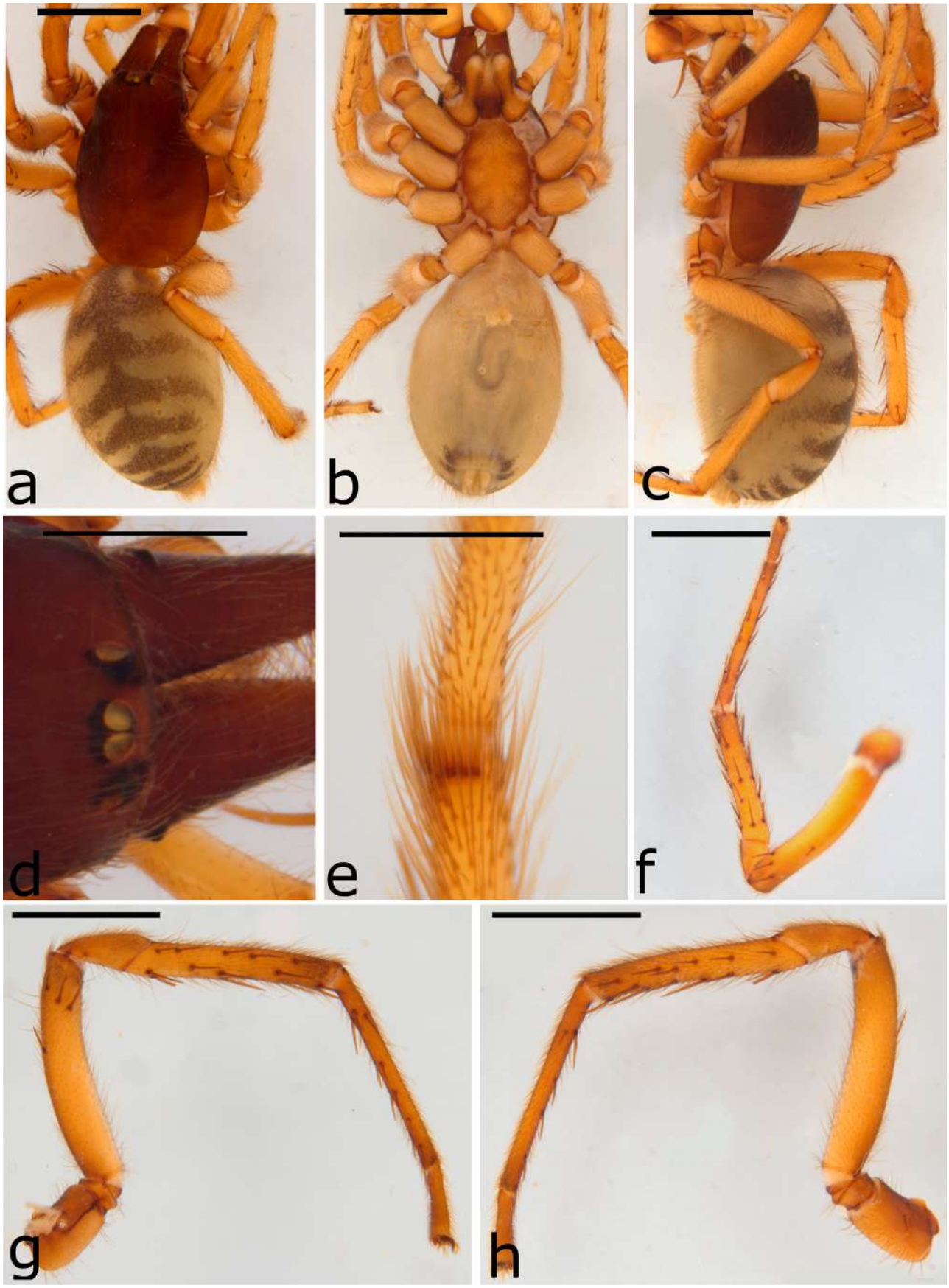

FIGURE 8. *Ariadna amabilia* **sp. nov.** ♂ holotype (AM KS.131051); Cornelian Bay (Tasmania); a habitus, dorsal view; b same, ventral view; c same, lateral view; d eyes, dorsal view; e left metatarsus IV, preening comb, retrolateral view; f left leg I, ventral view; g same prolateral view; h same retrolateral view. Scale bars a–c, f–h = 2mm. d = 1mm, e = 0.5mm.

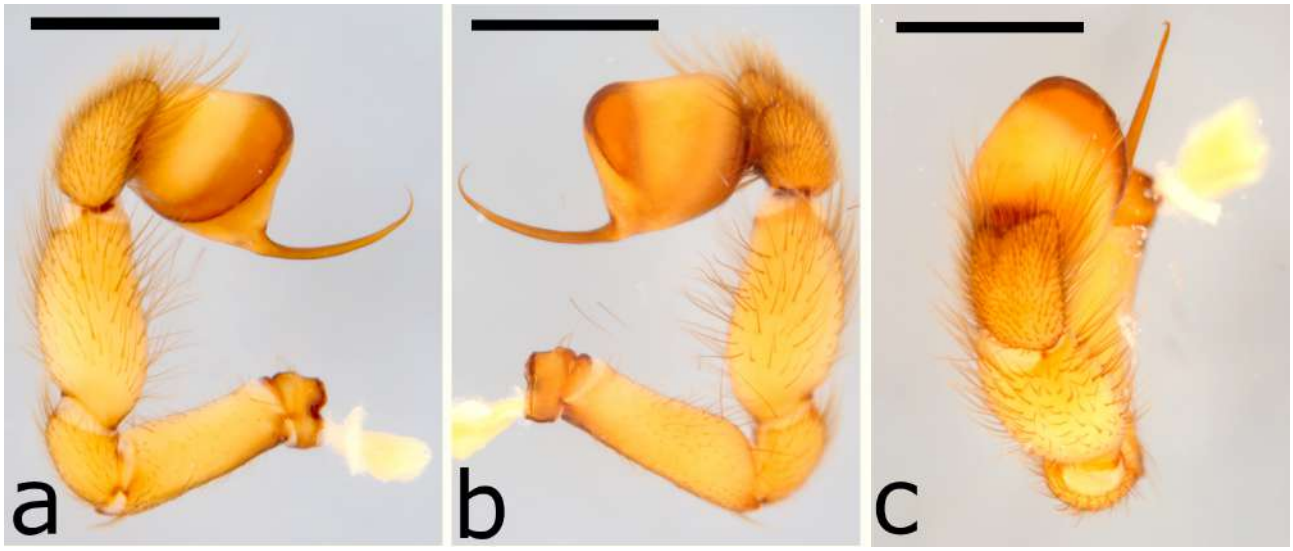

FIGURE 9. *Ariadna amabilia* **sp. nov**. ♂ holotype (AM KS.131051); Cornelian Bay (Tasmania); a left pedipalp, prolateral view; b same, retrolateral view; c same, dorsal view. Scale bar = 1mm.

Paratype ♀. Same data as holotype (AM KS.131052).

Other material examined. 4 ♀, same data as holotype (AM KS.29199); 1 ♀, same data as holotype, except 28 February 1964 (AM KS.29200); 6 ♀, Hobart, 42.88°S, 147.31°E, 18 May 1948, V.V. Hickman (AM KS.29194); 3 ♀, Cascades, 42.89°S, 147.27°E, 28 May 1929, V.V. Hickman (AM KS.29203); 1 ♀, Kingston Beach, 42.98°S, 147.32°E, in holes in bank, 5 January 1945, V.V. Hickman (AM KS.29207); 1 ♀, Trevallyn, Launceston, 41.44°S, 147.10°E, 10 April 1928, V.V. Hickman (AM KS.29208); 1 ♀, Porter Hill, 42.92°S, 147.35°E, 2010, coll. R. Raven (TMAG J4123).

Etymology. The specific epithet is a Latin adjective, meaning 'lovely' and refers to the pleasing form and colouration of this species.

Diagnosis. *Ariadna amabilia* **sp. nov.** is closest to *A. alta* **sp. nov.**, *A. segmentata* and *A. thylacinus* **sp. nov**. It is differentiated from *A. alta* **sp. nov.** by the lack of a dual row of macrosetae proventrally on tibia I of females (Fig. 10f, g cf. Fig. 5f, g). It can be differentiated from *A. segmentata* by the overall shape of the pedipalp bulb, with a rounded square bulb which on lateral view is distinctly bulbous dorsally in *A. amabilia* **sp. nov.**, but is elongate globular shaped in *A. segmentata*, and by the length and curvature of the embolus, which is elongate, smoothly curved and hooked in the apical portion in *A. amabilia* **sp. nov.**, but is relatively broad and hooked at around the midpoint in *A. segmentata* (Fig. 9a–c cf. Fig 27a–c). The species can be distinguished from *A. thylacinus* **sp. nov.** by the sinuous apical section of the embolus, which is smoothly curved and hooked apically in *A. amabilia* **sp. nov.**, whereas in *A. thylacinus* **sp. nov.** the embolus is sinuous apically; it can further be distinguished by the embolus arising from the bulb smoothly from the ventral edge of the bulb in *A. amabilia* **sp. nov.**, whereas in *A. thylacinus* **sp. nov.** the basal section of the embolus arises from a distinct mound (Fig. 9a–c cf. Fig. 35a–c).

Description. ♂ (based on holotype; AM KS.131051). Total length 8.5.

Colour in ethanol: Carapace dark red brown, lateral edges darker brown, darker areas extending out from fovea, re-bordered, sparse dark setae denser to edges and anteriorly; sternum dark orange brown, with darker brown areas running from between coxae to middle, sparse brown setae; labium dark brown, maxillae orange brown, chelicerae dark red brown; abdomen dorsally cream, with 10 dark grey transverse markings. Legs golden brown and covered in orange-brown setae (Fig. 8a–h)**.**

Cephalothorax: 3.8 long, 2.6 wide. Carapace rounded oval, narrowing anteriorly, edges gently undulating, fovea a shallow indentation (Fig. 8a); from lateral view carapace domed, highest just posterior to eyes (Fig. 8c). Labium narrowed anteriorly, about ¾ length of maxillae; chelicerae semi-porrect, with basal transverse ridge, retromargin with single tooth, promargin with three teeth; sternum elongated oval with precoxal triangles and with smaller, broadly triangular intercoxal extensions (Fig. 8b). Posterior eye row slightly recurved, eye group occupying about a half of carapace width (Fig. 8d).

Abdomen: 4.7 long. Rounded oval, with scattered fine setae (Fig. 8a).

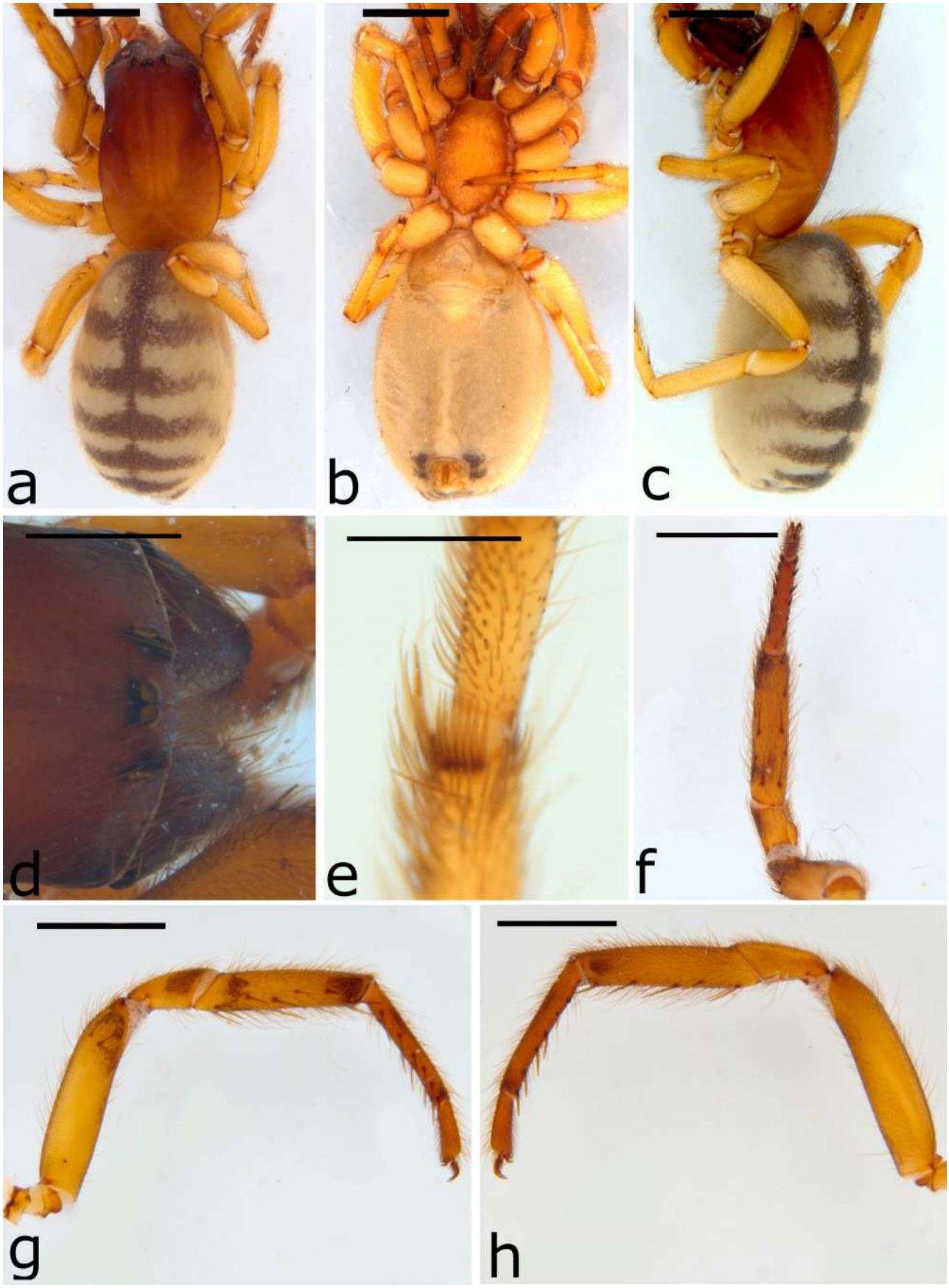

FIGURE 10. *Ariadna amabilia* **sp. nov.** ♀ paratype (AM KS.131052); Cornelian Bay (Tasmania); a habitus, dorsal view; b same, ventral view; c same, lateral view; d eyes, dorsal view; e left metatarsus IV, preening comb, retrolateral view; f left leg I, ventral view; g same prolateral view; h same retrolateral view. Scale bars a–c, f–h = 2mm, d = 1mm, e = 1mm

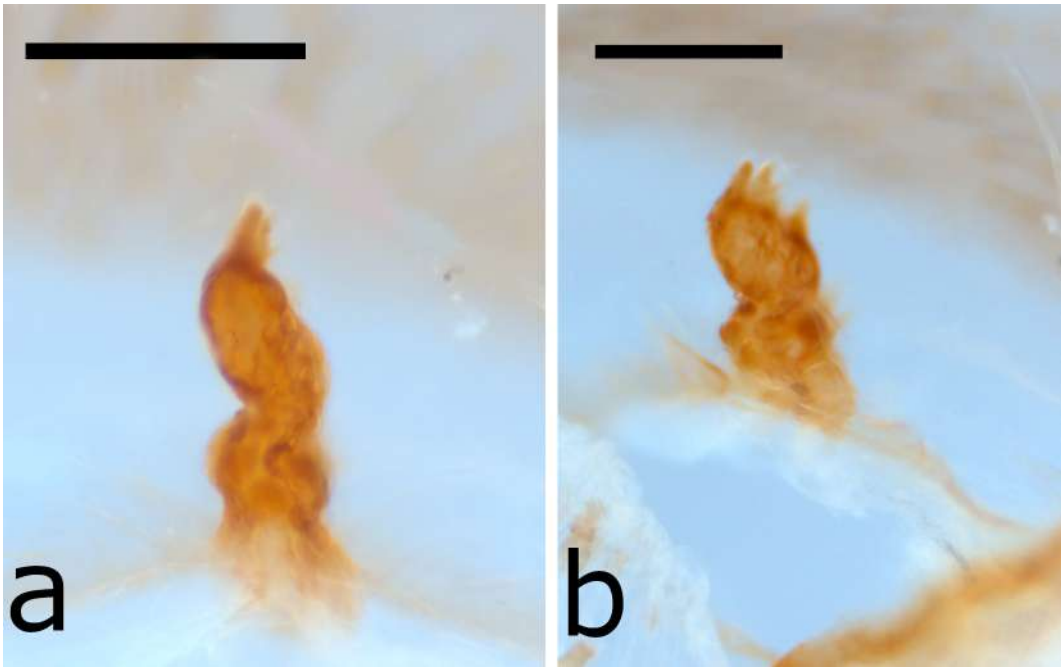

FIGURE 11. *Ariadna amabilia* **sp. nov.** ♀ (J1423); Porter Hill (Tasmania); anterior receptaculum a. ventral view; b. same lateral view, scale bar = 0.2mm.

Legs: Leg length ratio: II>I>III>IV. Leg I femur 3.2, patella 1.2, tibia 2.6, metatarsus 2.9, tarsus 1.1. Leg II femur 3.2, patella 1.1, tibia 3.2, metatarsus 3.2, tarsus 1.2. Leg III femur 2.8, patella 1.0, tibia 2.0, metatarsus 2.3, tarsus 1.2. Leg IV femur 2.6, patella 0.8, tibia 2.1, metatarsus 2.2, tarsus 1.1. Femur I bowed in dorsal view. Leg I Femur d1-1ap, dp2ap; tibia p1-1-1-1-1, pv1-1-1-1-1ap, rv1-1-1-1-2-1ap, r1-1-1-1-1-1; metatarsus p1, pv1-1-1-1-1, rv1-1-1-1-1ap, r1; Leg II femur d1-1, dp2ap; tibia p1-2-1, pv1ap, rv1-1-2-1-1-1ap, r1-1; metatarsus pr2-1-1-1-1ap, rv1-1-1-1, r1. Leg IV d1-1-1-1, dp1ap, p1, pv1-1-1ap, rv1; metatarsus v1, rv1-1-1-1-1ap, r1-1ap. Retrolateral distal preening comb with 7 spines (Fig. 8e). STC I, II with 10 teeth, ITC with small tooth. Tarsi with sparse, distal ventral scopulose setae.

Pedipalp: tibia not inflated, 1.5 times length of cymbium; cymbium rounded rectangular, with pronounced anterior prolateral extension; bulb rounded square in lateral view, with a bulbous projection dorsally, embolus arising ventrally from bulb, elongate, thin, hooked apically (Fig. 9a–c).

Description. ♀ (based on paratype; AM KS.131052). Total length 10.3.

Colour in ethanol: Carapace red brown, darker anteriorly, pale area centrally demarking raised caput, beginning anteriorly of fovea, edges darker red brown; sparse scattered setae, denser anteriorly; sternum pale orange, darker at edges, covered with moderately long black setae, labium darker red brown, maxillae orange brown, paler apically, chelicerae dark brown with dense, long, brown setae, abdomen dorsally pale cream-grey, with nine dark transverse markings, ventrally uniform pale-cream grey, excepting dark grey around the spinnerets. Legs golden brown with patches of dark brown on legs I and II, all with covering of fine setae (Fig. 10a–h).

Cephalothorax: 4.6 long, 2.8 wide, 2.9 high. Carapace oval, with broad, square 'neck' anteriorly, anterior edge broadly convex (Fig. 10a); lateral profile domed, highest between fovea and eye group (Fig. 10c). Labium narrowed anteriorly, about ¾ length of maxillae; chelicerae robust with basal transverse ridge, retromargin with single tooth, promargin with three teeth; sternum elongated oval with precoxal triangles and with smaller, rounded intercoxal extensions (Fig. 10b). Posterior eye row slightly recurved, eyes occupying about 0.4 of carapace width (Fig. 10d).

Abdomen: 5.7 long, rounded oval (Fig. 10a).

Legs: Leg length ratio II>I>IV>III. Leg I femur 3.1, patella 1.3, tibia 2.4, metatarsus 2.2; tarsus 0.9; leg II femur 3.1, patella 1.5, tibia 2.8, metatarsus 2.9, tarsus 1.1; leg III femur 2.6, patella 1.1, tibia 1.3, metatarsus 1.8, tarsus 1.1; leg IV femur 2.6, patella 1.4, tibia 2.2, metatarsus 1.7, tarsus 0.7. Femur I bowed in dorsal view. Macrosetae: Leg I Femur dp2ap; tibia pv1-1-1-1-1ap, rv1-1-1-1-1ap; metatarsus 2-2-2-1-2-2ap. Leg II femur dp1ap, tibia p1, pv1ap; rv1-1-1-1ap; metatarsus pv1-1-2-1-1ap, rv1-1-1-1-1. Leg IV femur d1-1-1-1, tibia pv1ap, v1-1; metatarsus

pv1ap, rv1-1-1-1ap. Retrolateral distal preening comb with 7 spines (Fig. 10e). STC I, II with 11 teeth, ITC with small tooth. Tarsi with distal ventral scopulose setae.

Pedipalp: With dense setae, dense macrosetae clustered prolaterally on tibia and tarsus, pedipalp claw bare.

Genitalia: Anterior receptaculum simple and gently sinuous in ventral view, in lateral view sinuous with three or four defined finger-like projections apically (Fig. 11a–b).

Variation. Specimens examined were consistent in colour and form of transverse abdominal markings and showed little variation in size. Leg macrosetae of tibia and metatarsus I varied little in number between specimens.

Distribution. Known from locations across Tasmania (Fig. 12).

***Ariadna crypticola* sp. nov.**

Figs 13a–h, 14a–c, 12

http://zoobank.org/NomenclaturalActs/86b58502-feff-4622-b0a0-d41e511cabe6

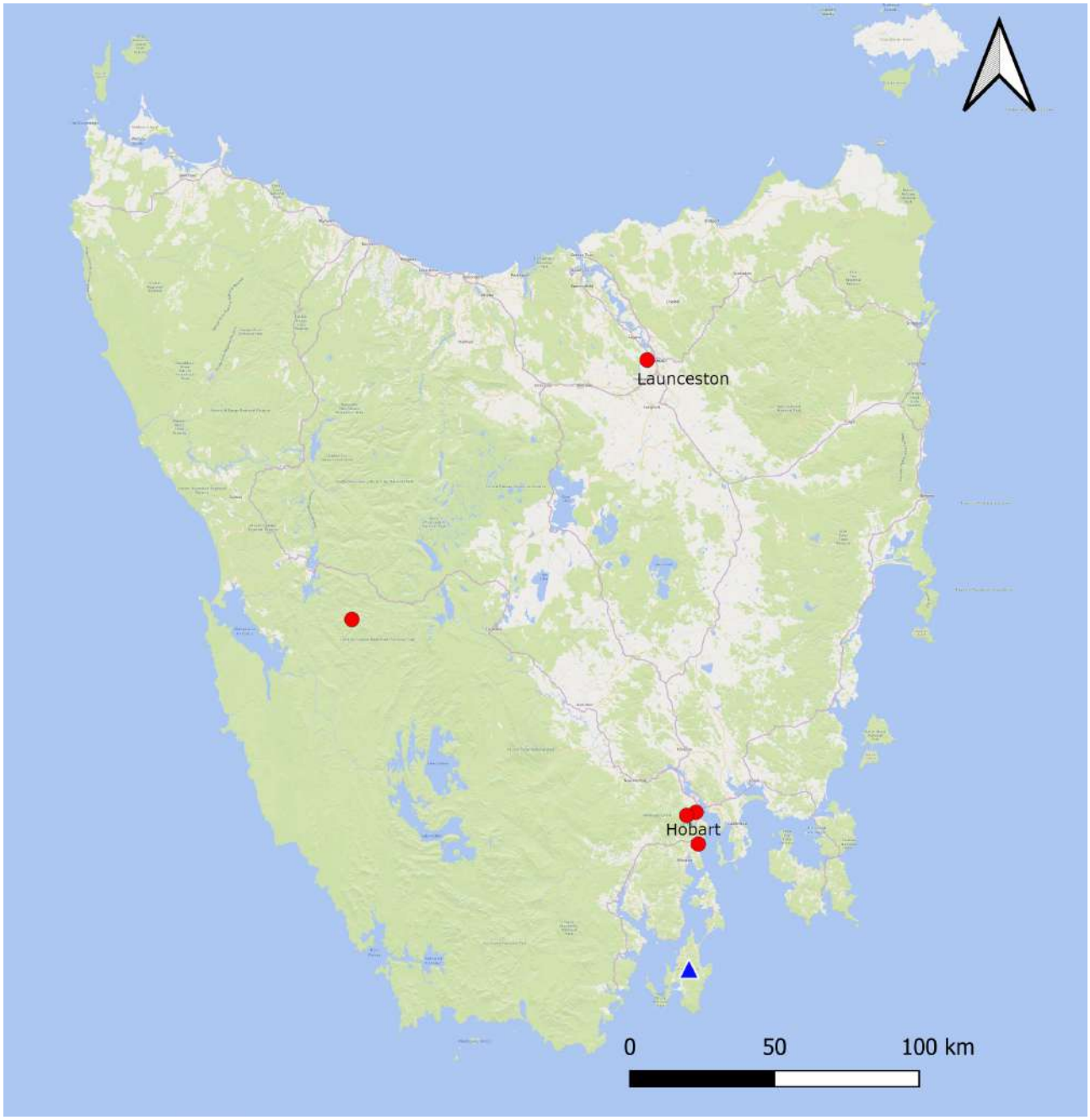

FIGURE 12. Distribution of *Ariadna amabilia* **sp. nov.** (red dot) and *Ariadna crypticola* **sp. nov.** (blue triangle)

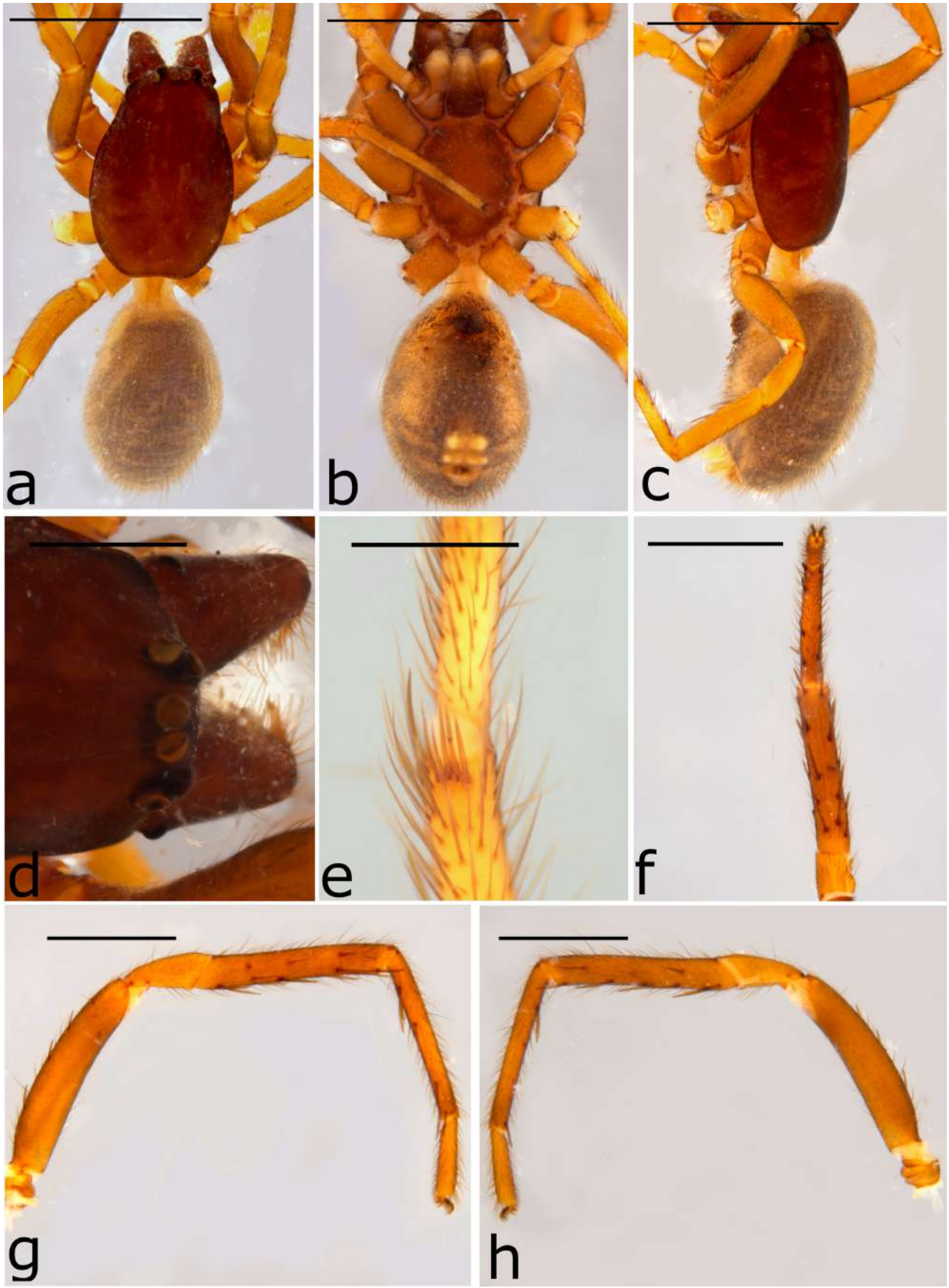

FIGURE 13. *Ariadna crypticola* **sp. nov.** ♂ holotype (AM KS.111585); Bruny Island (Tasmania); a habitus, dorsal view; b same, ventral view; c same, lateral view; d eyes, dorsal view; e left metatarsus IV, preening comb, retrolateral view; f left leg I, ventral view; g same prolateral view; h same retrolateral view. Scale bars a–c = 2mm, d, f–h = 1mm, e = 0.5mm

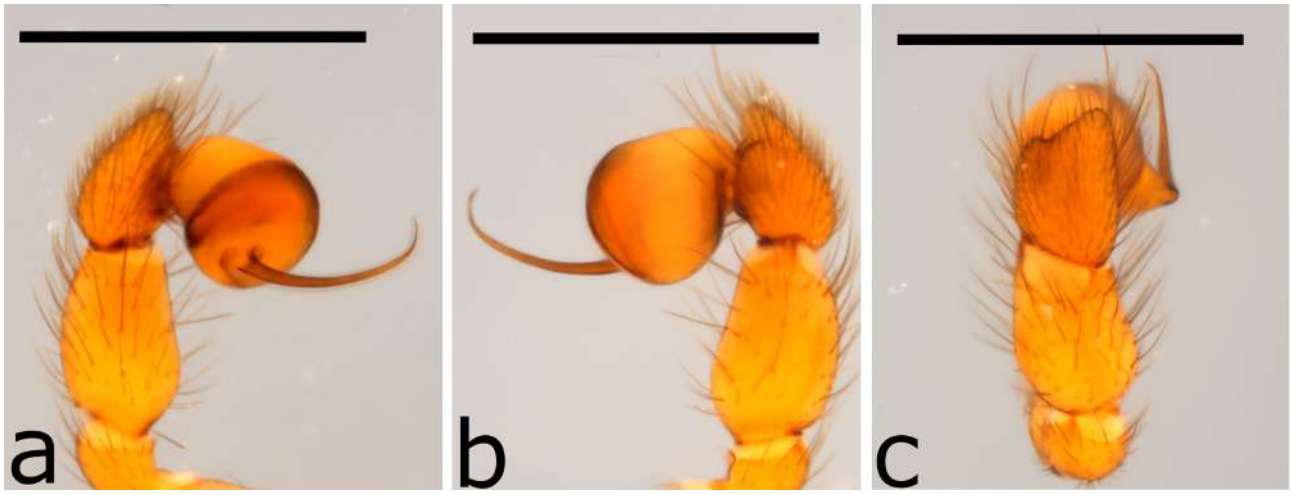

FIGURE 14. *Ariadna crypticola* **sp. nov.** ♂ holotype (AM KS.111585); Bruny Island (Tasmania); a left pedipalp, prolateral view; b same, retrolateral view; c same, dorsal view. Scale bar = 1mm.

Type material. *Holotype* ♂. AUSTRALIA: *Tasmania:* Bruny Island, Mt Mangana Nature Trail, 43.37°S, 147.28°E, 18 June 1974, coll. R. Mawbey & D. Coleman, in moss (AM KS.111585).

Other material examined. Known only from the type specimen.

Etymology. The specific epithet is taken form the Latin adjective, meaning 'cryptic' and refers to superficial morphological similarities of this species to other species of Tasmanian Segestriidae.

Diagnosis. Males of *A. crypticola* **sp. nov.** are most similar to *A. ferrogrisea* **sp. nov.**, *A. muscosa* and *A. subnubilum* **sp. nov.**. It can be distinguished from *A. ferrogrisea* **sp. nov.** by its longer and more curved embolus and elongated bulb (Fig. 14a, b cf. Fig. 16a, b) and by the pattern of, and greater number of macrosetae on tibia and metatarsus of leg I of *A. ferrogrisea* **sp. nov.** (Fig. 13f–h cf. Fig. 15f–h). The species can be differentiated from *A. muscosa* by the more pronounced prolateral projection on the cymbium, by the pedipalp tibia, which is broader and shorter in *A. crypticola* **sp. nov.** than *A. muscosa* and by the embolus, which has a more defined apical hook in *A. crypticola* **sp. nov.** (Fig. 14a–c cf. Fig. 25a–c). It can be separated from *A. subnubilum* **sp. nov.** by the squarer pedipalp cymbium, with a less well defined prolateral extension of *A. subnubilum* **sp. nov.** (Fig. 14c cf. Fig. 32c), by the lack of a transverse abdominal pattern in *A. subnubilum* **sp. nov.** (Fig. 13a cf. Fig. 31a). The species can also be distinguished by the number of macrosetae in the preening comb of leg IV, being composed of five macrosetae in *A. crypticola* **sp. nov.**, eight in *A. ferrogrisea* **sp. nov.**, seven in *A. muscosa* and seven in *A. subnubilum* **sp. nov.** (Fig. 13e cf. Figs 15e, 24e, 31e).

Description. ♂ (based on holotype; AM KS.111585). Total length 4.3.

Colour in ethanol: Carapace red brown, with irregular faint pallid patches laterally and anteriorly, with sparse brown setae; edges dark brown. Sternum orange-brown, with regular darker inter coxae patches; with scattered sparse, long dark setae. Labium, maxillae and chelicerae darker red brown. Abdomen dorsally dark grey, with faint, narrow white striations posteriorly; ventrally dark grey medially, paler laterally. Legs golden brown, with sparse dark setae (Fig. 13a–h).

Cephalothorax: 2.16 long, 1.5 wide, 1.1 high. Carapace oval, with a broad neck anteriorly, edges gently undulating, fovea a shallow indentation (Fig. 13a), from lateral view carapace gently domed, highest just posterior to eye group (Fig. 13c). Labium narrowed anteriorly, about ¾ length of maxillae; chelicerae with basal transverse ridge, retromargin with single tooth, promargin with three teeth; sternum rounded oval, convex, with precoxal triangles and with smaller, broadly triangular intercoxal extensions (Fig. 13b). Posterior eye row recurved, eyes large, eye group occupying 0.6 of carapace width (Fig. 13d).

Abdomen: 2.1 long; covering of short and long setae, longer posteriorly (Fig. 13a).

Legs: Leg length ratio: I>II>IV>III. Leg I femur 1.4, patella 0.6, tibia 1.3, metatarsus 0.9, tarsus 0.5; Leg II femur 1.5, patella 0.4, tibia 0.9, metatarsus 1.2, tarsus 0.6; Leg III femur 1.2, patella 0.6, tibia 0.9, metatarsus 0.6, tarsus 0.4; Leg IV femur 1.4, patella 0.5, tibia 0.8, metatarsus 1.0, tarsus 0.5. Femur I bowed in dorsal view. Leg I femur d1-1-1-1, dp1ap; tibia p1-1-1, pv1-1-1-1-1ap, rv1-1-1-1-1ap, r1-1-1; metatarsus pv1-1-1ap, rv1-1-1ap. Leg II femur d1-1-1, dp1/0ap; tibia p1-1-2, pv1-1ap, rv1-1-1-1ap, r1-1-1; metatarsus p1-1, pv1-1-1-1ap(broken), rv1-1-1-

1ap, r1. Leg IV femur d1-1-1; tibia rv1-1; metatarsus 1-1-1ap. Retrolateral distal preening comb with 5 macrosetae (Fig. 13e). STC I, II with 6 teeth, ITC with small tooth. Tarsi with sparse distal ventral scopulose setae.

Pedipalp: Tibia short, just greater than length of the cymbium; cymbium rounded square shape, with strongly triangular anterior prolateral extension, scopulose setae anteriorly. Bulb elongate globular in lateral view, embolus long, thin and strongly hooked apically (Fig. 14a–c).

Variation. Known only from the type specimen.

Distribution. Known only from one specimen from Bruny Island, a small island located off the south-eastern coast of Tasmania (Fig. 12).

***Ariadna ferrogrisea* sp. nov.**

Figs 15a–h, 16a–c, 17a–h, 18a–b, 19

http://zoobank.org/NomenclaturalActs/130e6123-e5d6-45c6-837f-bc82365c3450

Type material. *Holotype* ♂. AUSTRALIA: *Tasmania:* Mount Wellington summit, under stones, 42.90°S, 147.24°E, 9 February 1946, V.V. Hickman (AM KS.131053).

Paratype ♀. Same data as holotype (AM KS.131054).

Other material examined. 1 ♂, three ♀, same data as holotype (AM KS.29167); 1 ♂, 1 ♀, Mount Wellington, junction Organ Pipe Track and road, 42.90°S, 147.24°E, 19 May 1972, V.V. Hickman (AM KS.29181); 1 ♂, 4 ♀, Mount Wellington, 42.90°S, 147.24°E, 13 September 1951 V.V. Hickman (AM KS.29190); 3 ♀, Mount Wellington summit, 42.90°S, 147.24°E, 11 April 1939, V.V. Hickman (AM KS.31093).

Etymology. The specific epithet is a Latin adjective, meaning 'steel grey' and refers to the dark grey colouration of the abdomen of the species.

Diagnosis. *A. ferrogrisea* **sp. nov.** is most similar to *A. crypticola* **sp. nov.**, *A. muscosa* and *A. subnubilum* **sp. nov.**, from which it can be distinguished by the greater density of macrosetae on tibia and metatarsus of Leg I (Fig. 15f–h cf. Figs 13f–h, 23f–h, 31a–h) and the number of macrosetae in the preening comb of leg IV; with 8 macrosetae in *A. ferrogrisea* **sp. nov.**, five in *A. crypticola* **sp. nov.**, and seven in *A. muscosa* and *A. subnubilum* **sp. nov.** (Figs 15e, 17e cf. Figs 13e, 24e, 31e). It is further differentiated from *A. muscosa* by the shape of the pedipalp cymbium, which has a more pronounced prolateral extension in *A. ferrogrisea* **sp. nov.** (Fig. 16c cf. Fig. 25c), and from *A. subnubilum* **sp. nov.** by the presence of transverse abdominal markings (Fig. 5a cf. Fig. 31a) and by the shape of the pedipalp bulb, which is pyramidal in *A. ferrogrisea* **sp. nov.**, but is rounded oblong in *A. subnubilum* **sp. nov.** (Fig. 16a, b cf. Fig. 32a, b).

Description. ♂ (based on holotype; AM KS.131053). Total length 5.8.

Colour in ethanol: Carapace dark red brown, slightly lighter brown anterior to fovea; lateral edges dark brown; with sparse dark setae confined to lateral edges and anteriorly, denser anteriorly. Sternum dark orange brown, with sparse black setae; labium dark brown, maxillae orange brown; chelicerae dark red brown. Abdomen dorsally dark grey, with four narrow, faint, white striations posteriorly; ventrally dark grey, with faint, fine pale striations making the surface appear wrinkled. Legs golden brown and covered in dark setae (Fig. 15a–h).

Cephalothorax: 2.8 long, 1.9 wide, 1.3 high. Carapace oval, narrowing anteriorly, edges gently undulating, fovea a shallow indentation (Fig. 15a), from lateral view carapace gently domed, highest just anterior to fovea (Fig, 15c). Labium narrowed anteriorly, about ¾ length of maxillae; chelicerae with basal transverse ridge, retromargin with single tooth, promargin with three teeth; sternum elongated oval with precoxal triangles and with smaller, broadly triangular intercoxal extensions (Fig. 15b). Posterior eye row slightly recurved, eye group occupying 0.6 of carapace width (Fig. 15d).

Abdomen: 2.7 long; with sparse, moderately long setae (Fig. 15a).

Legs: Leg length ratio: II>I>IV>III. Leg I femur 2.3, patella 0.9, tibia 1.9, metatarsus 1.9, tarsus 0.8; Leg II femur 2.3, patella 0.9, tibia 2.0, metatarsus 1.9, tarsus 0.8; Leg III femur 1.8, patella 0.6, tibia 1.0, metatarsus 1.3, tarsus 0.6; Leg IV femur 1.9, patella 0.5, tibia 1.0, metatarsus 1.4, tarsus 0.7. Femur I bowed in dorsal view. Macrosetae: Leg I femur d1-1-1-1ap, dp1ap; tibia p1-1-1-1, pv1-1-1-1-1-1ap, rv1-1-1-1-1ap, r1-1-1-1; metatarsus p1-1-1-1-1-1, r1-1-1(broken)-1(broken)-1ap. Leg II femur d1/0-1-1-1, dp1ap; tibia r1, rv1-1-1ap, pv1ap, p1-1-1; metatarsus p1, pv1-1-1-1-1ap, rv1-1-1-1ap, r1. Leg IV femur d1-1-1; tibia p1-1-1ap, r1; metatarsus r1-1-1ap, v1. Retrolateral distal preening comb with 8 spines (Fig. 15e). STC I, II with 6 teeth, ITC with small tooth. Tarsi with distal ventral scopulose setae.

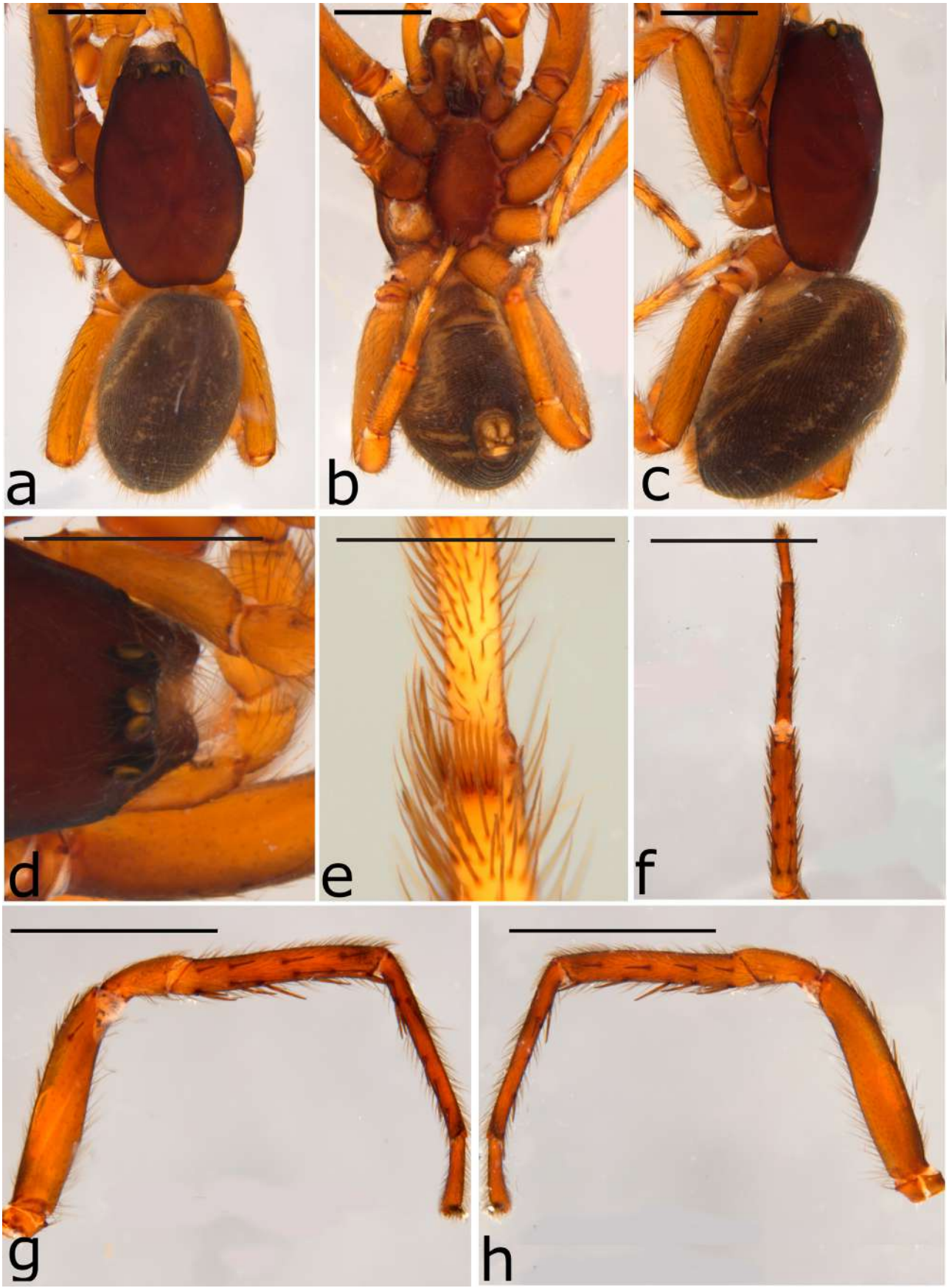

FIGURE 15. *Ariadna ferrogrisea* **sp. nov.** ♂ holotype (AM KS.131053); Mount Wellington (Tasmania), a habitus, dorsal view; b same, ventral view; c same, lateral view; d eyes, dorsal view; e left metatarsus IV, preening comb, retrolateral view; f left leg I, ventral view; g same prolateral view; h same retrolateral view. Scale bars a–c = 1mm, f–h = 2mm, d, e = 1mm.

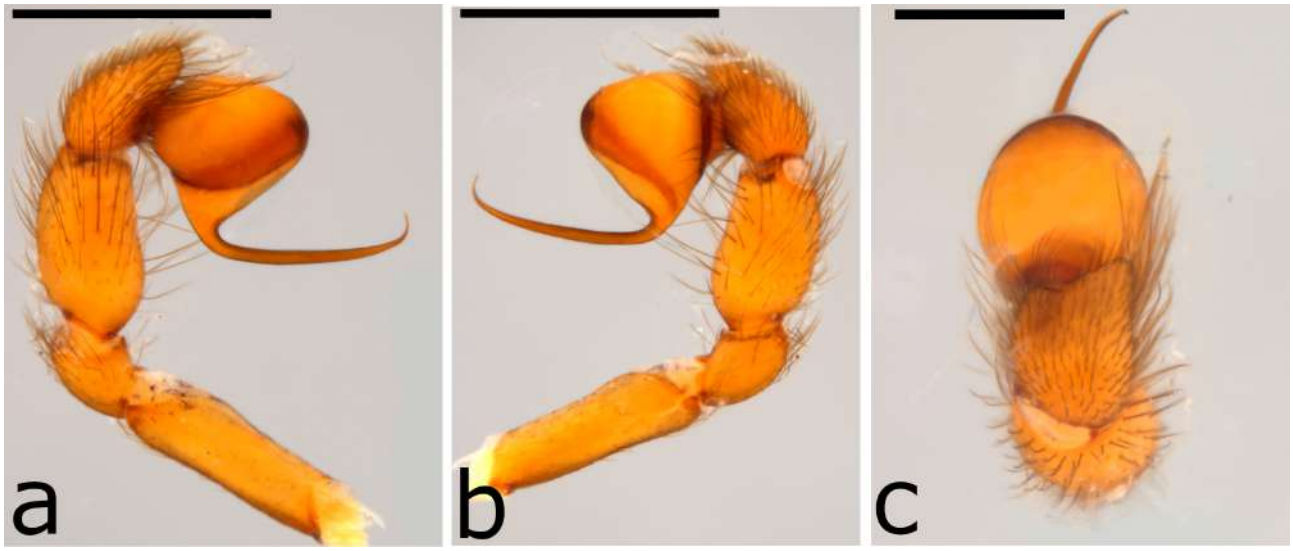

FIGURE 16. *Ariadna ferrogrisea* **sp. nov.** ♂ holotype (AM KS.131053); Mount Wellington (Tasmania); a left pedipalp, prolateral view; b same, retrolateral view; c same, dorsal view. Scale bar a, b = 1mm, c = 0.5mm.

Pedipalp: Tibia short, just greater than length of the cymbium; cymbium rounded square shape, with anterior prolateral extension; bulb pyramidal in lateral view; embolus long, thin and hooked apically (Fig. 16a–c).

Description. ♀ (based on paratype; AM KS.131054). Total length 6.41.

Colour in ethanol: Carapace dark, red brown, darker around edges with a pale area centrally demarking the raised caput, beginning anteriorly of fovea, and bordered by darker red brown. Carapace with sparse scattered setae, denser anteriorly. Sternum orange brown, darker near edges, with moderately long black setae; labium darker brown; maxillae orange brown, paler apically; chelicerae dark brown with dense, long, brown setae. Abdomen dorsally dark grey, with three narrow, faint, paler striations posteriorly, ventrally dark grey, with two broad paler patches laterally, with faint, fine pale striations making the surface appear wrinkled. Legs red brown, with dense setae (Fig. 17a–h).

Cephalothorax: 3.1 long, 2.0 wide, 1.6 high. Carapace rounded rectangular, with broad, square 'neck' anteriorly, anterior edge straight (Fig. 17a), lateral profile domed, highest just posterior to eye group (Fig. 17c). Labium narrowed anteriorly, about ¾ length of maxillae; chelicerae robust with basal transverse ridge, retromargin with single tooth, promargin with three teeth; sternum elongated oval with precoxal triangles and with smaller, rounded intercoxal extensions (Fig. 17b). Posterior eye row slightly recurved, eyes occupying about 1/3 of carapace width (Fig. 17d).

Abdomen: 3.3 long; with moderate length sparse setae (Fig. 17a, c).

Legs: Leg length ratio I>II>IV>III. Leg I femur 2.1, patella 1.0, tibia 1.6, metatarsus 1.3, tarsus 0.6; Leg II femur 2.1, patella 0.8, tibia 1.7, metatarsus 1.0, tarsus 0.6. Leg III; femur 1.4, patella 0.7, tibia 1.3, metatarsus 0.8, tarsus 0.4. Leg IV femur 2.0, patella 0.9, tibia 1.5, metatarsus 1.0, tarsus 0.4. Femur I bowed in dorsal view. Macrosetae: Leg I Femur dp2ap; tibia pv1-1-1-1-1-1ap, rv1-1-1-1-1-1ap; metatarsus 2-2-2-2-2-2-2. Leg II femur dp1ap; tibia p1-1-1ap, v1-1-1-1-1ap; metatarsus 2-2-2-2-2-2-2. Leg IV femur d1-1/0; tibia p1ap, v1-1; metatarsus rv1-1-1-1/0-1ap. Retrolateral distal preening comb with 8 spines (Fig. 17e). STC I, II with 7 teeth, ITC with small tooth. Tarsi with distal ventral scopulose setae.

Pedipalp: with dense setae, dense macrosetae clustered prolaterally on tibia and tarsus, pedipalp claw bare.

Genitalia: Anterior receptaculum bilobed, slightly sinuous in ventral view (Fig. 18a–b).

Variation. Specimens examined showed variation in the number of macrosetae dorsally on the femur (3–5 macrosetae); and on the number on tibia and metatarsus I (range 16–19 macrosetae). There was no variation exhibited in the preening comb on metatarsus IV. Macrosetae of other legs were more variable. Specimens showed little variation in colour, or in size.

Distribution. Known only from Kunanyi / Mount Wellington, south west Tasmania (Fig. 19).

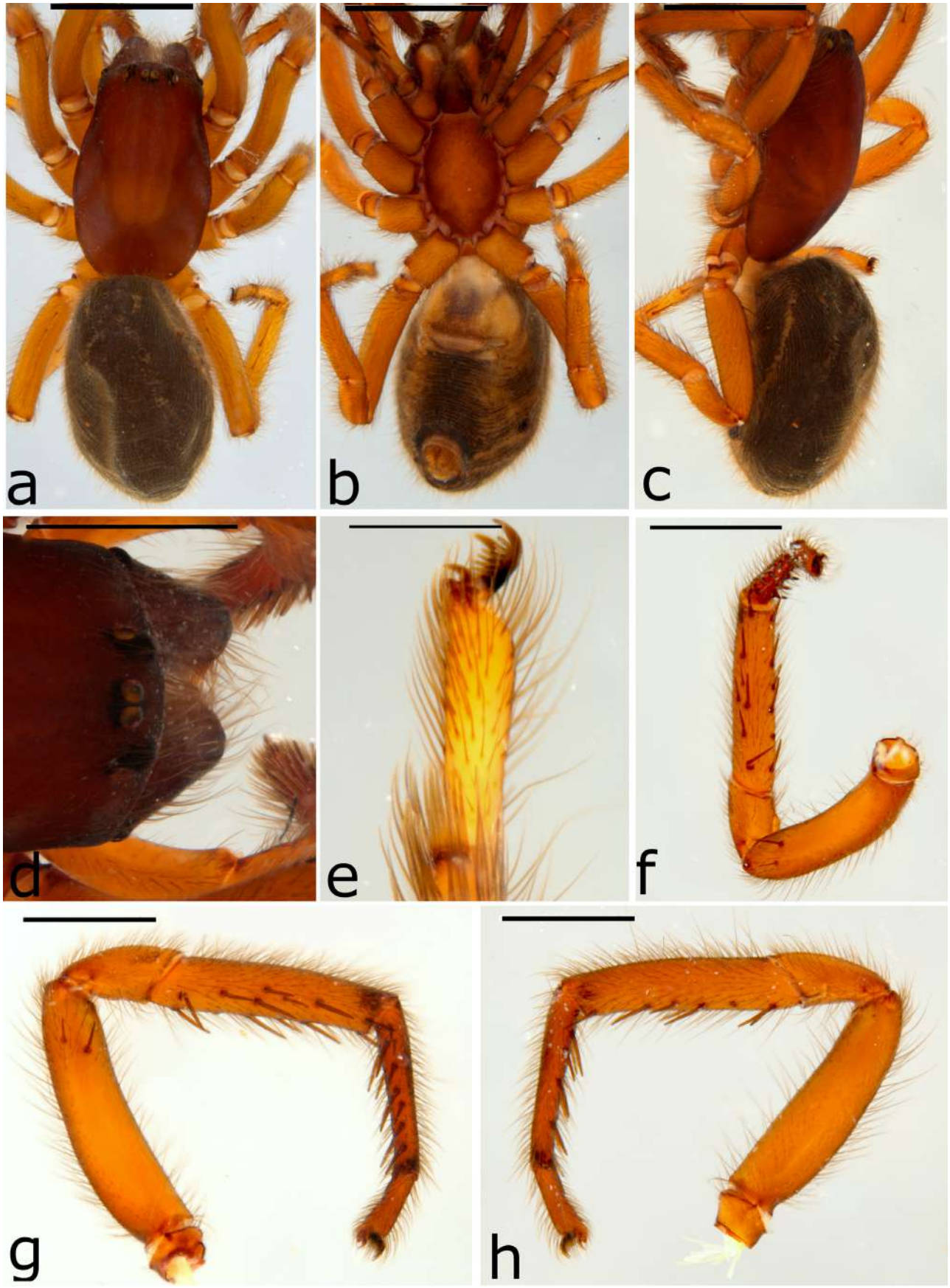

FIGURE 17. *Ariadna ferrogrisea* **sp. nov.** ♀ paratype (AM KS.131054); Mount Wellington (Tasmania); a habitus, dorsal view; b same, ventral view; c same, lateral view; d eyes, dorsal view; e left metatarsus IV, preening comb, retrolateral view; f left leg I, ventral view; g same prolateral view; h same retrolateral view. Scale bars a–d, f–h = 2mm, e = 1mm.

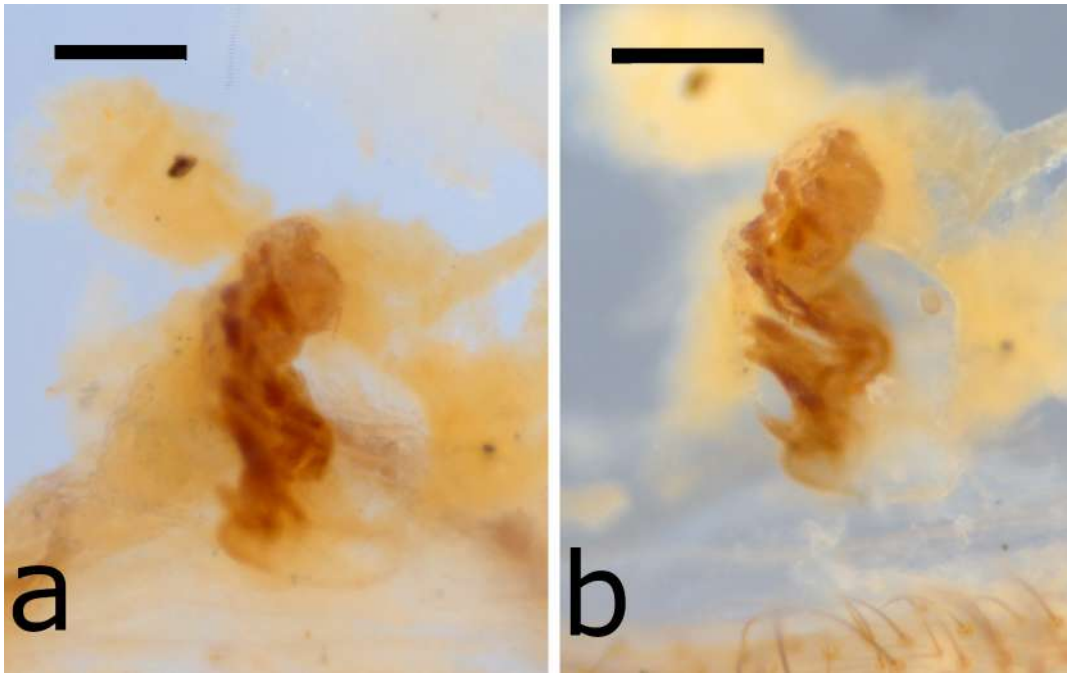

FIGURE 18. *Ariadna ferrogrisea* **sp. nov.** ♀ paratype (AM KS.29166); Mount Wellington (Tasmania); anterior receptaculum a. ventral view; b. same lateral view, scale bar = 0.2mm.

***Ariadna fragilis* sp. nov.**
Figs 20a–h, 21a–c, 19
http://zoobank.org/NomenclaturalActs/4fecfd82-2de9-4643-a792-a8938643c7d6

Type material. *Holotype* ♂. AUSTRALIA: *Tasmania:* Mount Chappell Island in Bass Strait, 40.27°S, 147.52°E, 29 July 1989–7 August 1989, coll. S. Fearn (QVMAG QVM:2020:13:0111)

Other material examined. Known only from the type specimen.

Etymology. The specific epithet is a Latin adjective meaning 'fragile' and refers to the slender form of the species.

Diagnosis. *Ariadna fragilis* **sp. nov.** is most similar to *A. abbreviata* **sp. nov.**, *A. clavata* and *A. tigrina* **sp. nov.**. It is differentiated from *A. abbreviata* **sp. nov.** by the lack of shortened, blunt macrosetae prolaterally on metatarsus I (Fig. 20f–h cf. Fig. 1f–h). It is differentiated from *A. clavata* by its slenderer pedipalp tibia compared to the cymbium length and by the embolus, which is less hooked apically in *A. fragilis* **sp. nov.**, than in *A. clavata* (Fig. 21a, b cf. fig. 1g, i Marsh *et al.* 2018). The species is differentiated from *A. tigrina* **sp. nov.** by its longer and slenderer pedipalp tibia (Fig. 21a, b cf. Fig. 39a, b), and by the pattern of macrosetae on the tibia and metatarsus of leg I, which is paired in *A. fragilis* **sp. nov.** (Fig. 20f–h cf. Fig. 37f–h).

Description. ♂ (based on holotype; QVMAG QVM:2020:13:0111). Total length 4.7.

Colour in ethanol: Carapace golden, orange brown, sparse, scattered light setae, caput area raised anterior to fovea and lighter yellow brown; sternum yellow brown, with sparse long brown setae, maxillae yellow brown, paler in colour apically, labium darker orange brown, chelicerae orange brown; abdomen dorsally pale grey, with nine dark grey, clearly defined chevrons, with triangular extensions in the centre and joined by dark median line, ventrally cream with dark patches centrally and laterally. Legs yellow brown, with darkened patches distally tibiae I and II, with sparse brown setae (Fig. 20a–c).

Cephalothorax: 2.2 long, 1.4 wide. Carapace oval, blunt anteriorly, caput raised towards anterior, highest at eyes, fovea shallow (Fig. 20a); in lateral view carapace projected forward over clypeus (Fig. 20c). Labium narrowed anteriorly, about ¾ length of maxillae; chelicerae with basal transverse ridge, retromargin with single tooth, promargin with three teeth; sternum oval, domed with precoxal triangles and with smaller, rounded intercoxal extensions (Fig. 20b). Posterior eye row straight, eye group occupying about a third of carapace width (Fig. 20d).

Abdomen: 2.5 long. Covered in fine dense setae (Fig. 20a).

Legs: Leg length ratio: I>II>IV>III. Leg I femur 1.2, patella 0.4, tibia 1.5, metatarsus 1.3, tarsus 0.5. Leg II femur 0.9, patella 0.4, tibia 1.4, metatarsus 1.2, tarsus 0.6. Leg III femur 1.1, patella 0.5, tibia 0.9, metatarsus 0.6, tarsus 0.4. Leg IV femur 1.3, patella 0.5, tibia 1.2, metatarsus 0.7, tarsus 0.4. Femur I bowed in dorsal view. Macrosetae: Leg I: femur dp2ap; tibia p1, pv1-1-1 (long)-1ap, rv1-1-1ap; metatarsus pv1-1-1, rv1-1-1-1ap. Leg II femur dp1ap; tibia dp1-1-2, dp1ap, v1-1-1ap; metatarsus pv1-1-1-1ap, v1, rv1-1-1-1/0ap. Leg IV tibia v1-1; metatarsus r1-1-1ap, rv1. Retrolateral distal preening comb with 6 spines (Fig. 20e). STC I, II with 11 long teeth, ITC with single long tooth, Tarsi with distal ventral scopulose setae.

Pedipalp tibia short, about 1 ½ the length of the cymbium; cymbium rounded square shape, with anterior prolateral extension; bulb pyramidal in lateral view, embolus elongate, thin and hooked apically (Fig. 21a–c).

Variation. Known only from the type specimen.

Distribution. Known only from type locality, Mount Chappell Island in the Furneaux Group (Fig. 19).

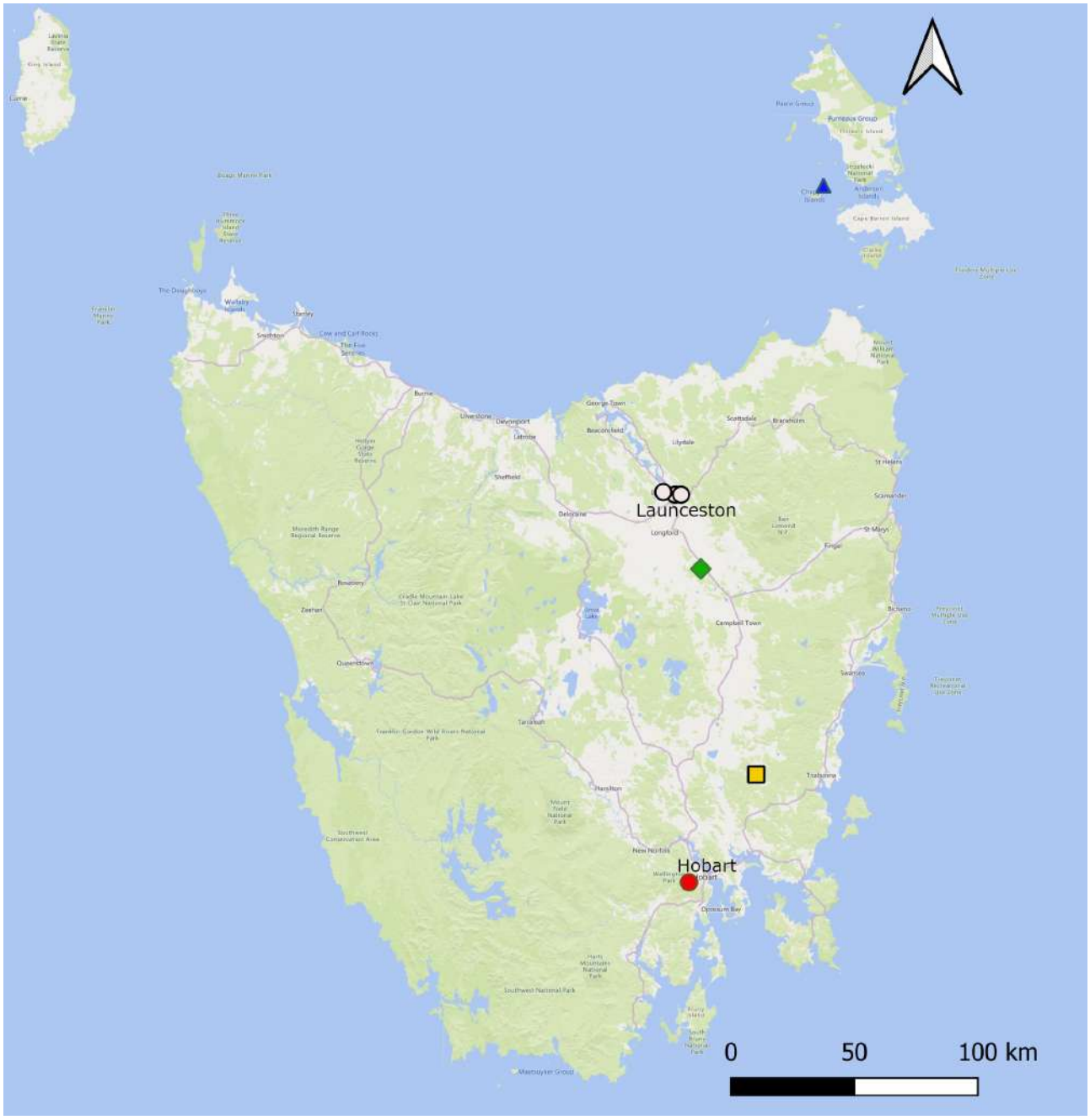

FIGURE 19. Distribution of *Ariadna ferrogrisea* **sp. nov.** (red circle), *Ariadna fragilis* **sp. nov.** (blue triangle), *Ariadna gonzo* **sp. nov.** (green diamond), *Ariadna major* (yellow square), *Ariadna muscosa* (white circles).

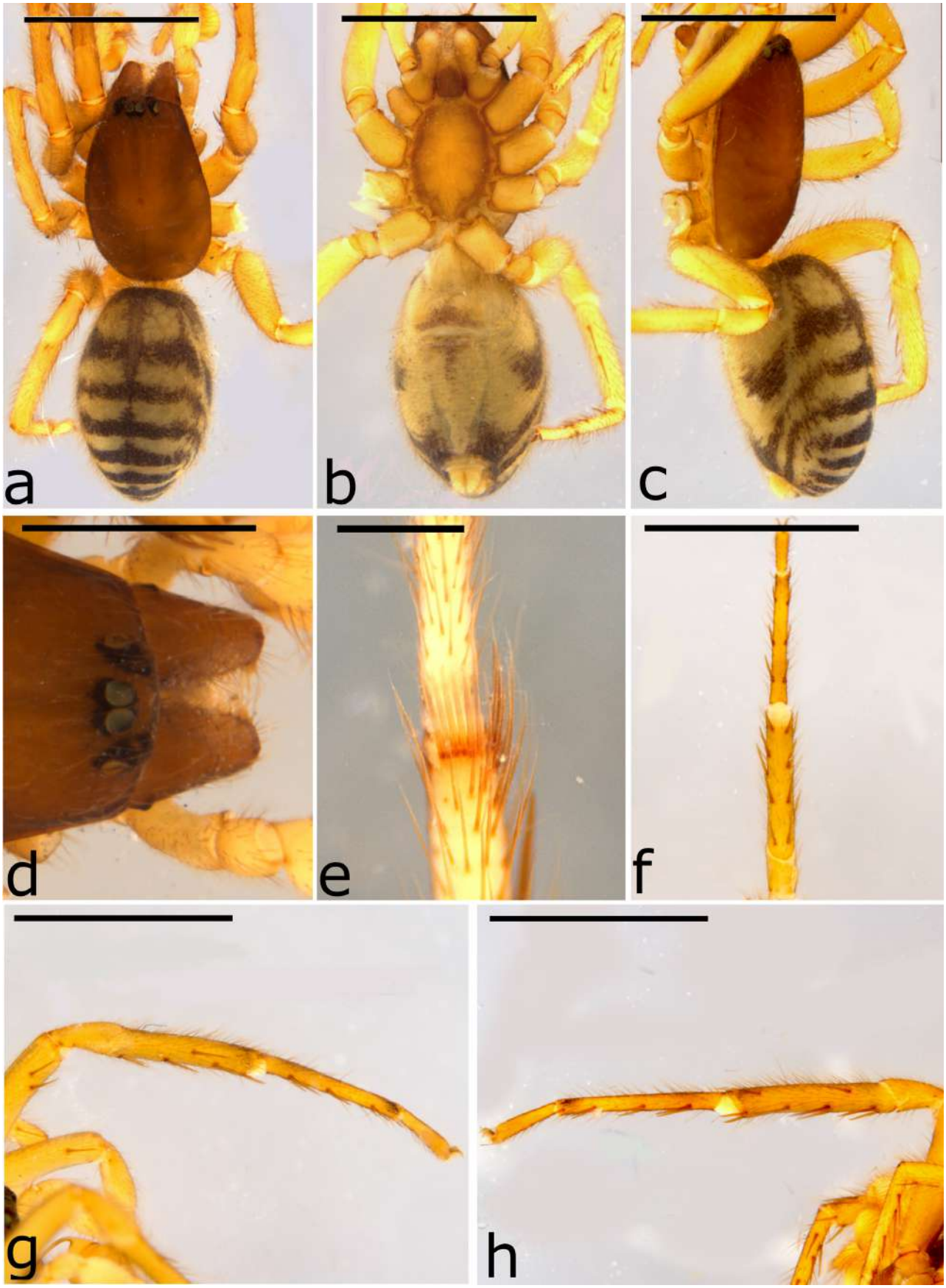

FIGURE 20. *Ariadna fragilis* **sp. nov.** ♂ holotype (QVMAG QVM:13:0111); Mount Chappell Island (Tasmania); a habitus, dorsal view; b same, ventral view; c same, lateral view; d eyes, dorsal view; e left metatarsus IV, preening comb, retrolateral view; f left leg I, ventral view; g same prolateral view; h same retrolateral view. Scale bars a, g = 2mm, d = 1mm, e = 0.2mm.

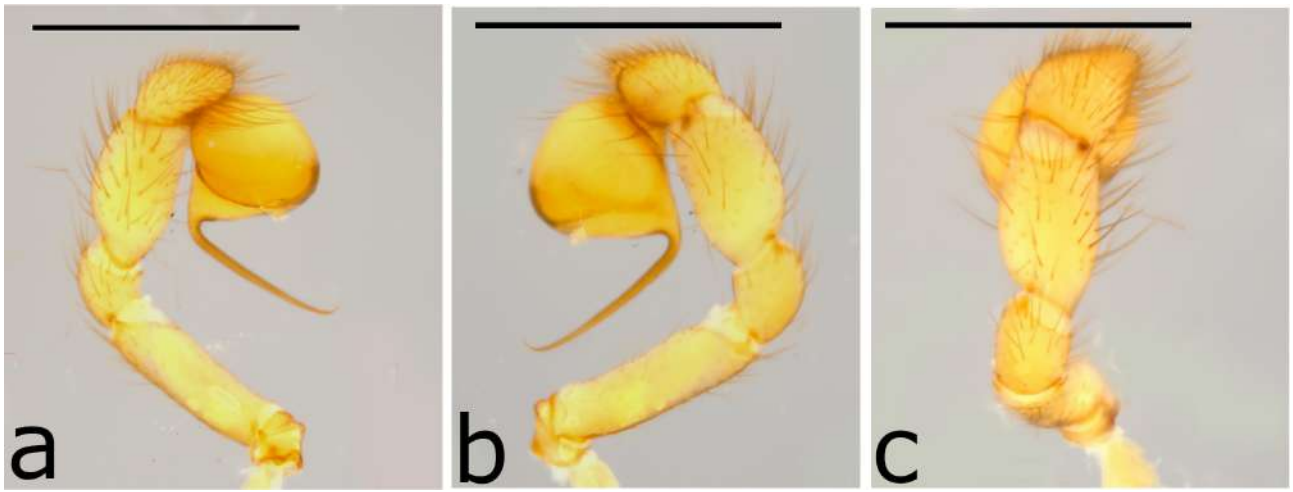

FIGURE 21. *Ariadna fragilis* **sp. nov.** ♂ holotype (QVMAG QVM:13:0111); Mount Chappell Island (Tasmania); a left pedipalp, prolateral view; b same, retrolateral view; c same, dorsal view. Scale bar = 1mm.

***Ariadna gonzo* sp. nov.**
Figs 22a–h, 23a–c, 19
http://zoobank.org/NomenclaturalActs/345338b5-eeb0-453a-8777-29ac4c70af14

Type material. *Holotype* ♂. AUSTRALIA: *Tasmania:* Epping Forest, Sherwood Bush Block pitfall 3; 41.73°S, 147.30°E; 05 April 1991; coll. L. McGowan (QVMAG QVM:2021:13:0640).

Other material examined. *Tasmania*: 3 ♂, same data as holotype (QVMAG QVM:13:42419).

Etymology. The specific epithet is in reference to the curved and hooked embolus of the pedipalp, which resembles the nose of the Muppet character Gonzo.

Diagnosis. *Ariadna gonzo* **sp. nov.** is closest to *A. abbreviata* **sp. nov**., *A. clavata* and *A. muscosa*, it can be differentiated from these species by the embolus arising medially from the bulb, and with the embolus being hooked at around ¾ of its length (Fig. 23a–c cf. Figs 2a–c, 25a–c ; fig. 1g, i Marsh *et al.* 2018).

Description. ♂ (based on holotype; QVMAG QVM:2021:13:0640). Total length 6.9.

Colour in ethanol: Carapace dark brown, darker anteriorly, with sparse, scattered dark setae, denser anteriorly; sternum mid brown, with black long brown setae, maxillae and labium mid brown, paler in colour apically, chelicerae dark red brown; abdomen dorsally light grey, with dark grey chevrons, ventrally light grey. Legs golden yellow brown, with dark setae (Fig. 22a–h).

Cephalothorax: 3.5 long, 1.9 wide, 1.8 high. Carapace broadly oval, anteriorly with broad neck, fovea shallow (Fig. 22a); in lateral view carapace domed, caput raised towards anterior, highest at midpoint between fovea and eyes (Fig. 22c). Labium narrowed anteriorly, about ¾ length of maxillae; chelicerae hypognathous, with basal transverse ridge, retromargin with single tooth, promargin with three teeth; sternum oval, with precoxal triangles and with smaller, rounded intercoxal extensions (Fig. 22b). Eye group 0.7 wide, 0.5 of anterior carapace width; posterior eye row slightly recurved, eye group on extensions projecting anteriorly over clypeus (Fig. 22d).

Abdomen: 2.8 long. Covered in fine setae (Fig 22a).

Legs: Leg length ratio II>I>IV. Leg I femur 2.9, patella 1.0, tibia 2.2, metatarsus 1.8, tarsus 1.0. Leg II femur 2.6, patella 1.0, tibia 2.4, metatarsus 2.3, tarsus 0.9. Leg IV femur 2.5, patella 1.1, tibia 2.1, metatarsus 1.9, tarsus 0.9. Femur I bowed in dorsal view. Leg III damaged. Macrosetae: Leg I: Femur d1-1-1-1ap, dp2ap; tibia p1-1-1-1-1, pv1-1-1-1-1-1ap, rv1-1-1-1-1-1ap, r1-1-1-1-1; metatarsus p1-1-1, pv1-1-1-1-1-1ap, rv1-1-1-1-1ap, r1. Leg II femur d1, dp2ap; tibia p1-1-1, pv1-1-1ap, rv1-1-1-1-1-1ap, r1-1-1-1-1-1. Leg IV femur d1-1-1-1-1, dp1ap; tibia p1-1-1-1-1, v1-1-1ap, rv1-1-1ap; metatarsus p1-1-1, pv1-1-1-1ap, v1-1ap, r1. Retrolateral distal preening comb with 7 spines (Fig, 22e). STC I, II with 11 long teeth, ITC with single tooth, Tarsi with distal ventral scopulose setae.

Pedipalp: Tibia short, bulbous and ventrally expanded, 0.7 width to height; cymbium rounded square, triangular apically with elongate setae; bulb globular, embolus originating medially from ventral edge of bulb, broad; curved and hooked apically (Fig. 23a–c).

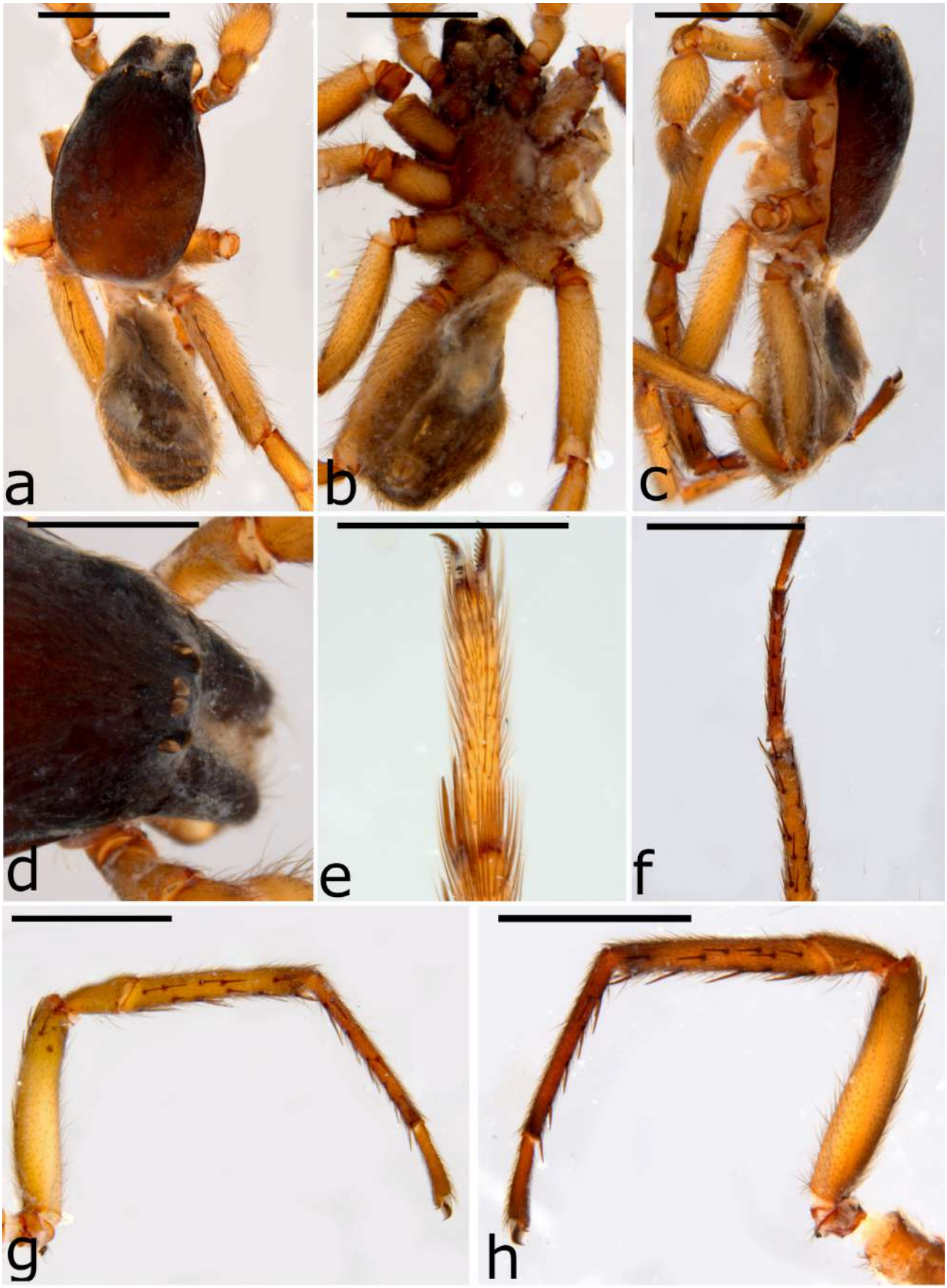

FIGURE 22. *Ariadna gonzo* **sp. nov**. ♂ holotype (QVMAG QVM:2021:13:0640); Epping Forest (Tasmania); a habitus, dorsal view; b same, ventral view; c same, lateral view; d eyes, dorsal view; e left metatarsus IV, preening comb, retrolateral view; f left leg I, ventral view; g same prolateral view; h same retrolateral view. Scale bars a–c, f–h = 2mm, d, e = 1mm.

FIGURE 23. *Ariadna gonzo* **sp. nov.** ♂ holotype (QVMAG QVM:2021:13:0640); Epping Forest (Tasmania); a left pedipalp, prolateral view; b same, retrolateral view; c same, dorsal view. Scale bar = 1mm.

Variation. Material examined for this species was in poor condition and many macrosetae were damaged, however, there was little variation in the specimens examined.

Distribution. Known only from type locality ca. 35 km SSE of Launceston (Fig. 19)

Ariadna major Hickman, 1929

Fig. 19

Ariadna major Hickman, 1929, 100, fig. 2

Type material. *Holotype* ♀. AUSTRALIA: *Tasmania:* Mount Hobbs, east Tasmania, 42.5°S, 147.58°E. 13 May 1928, V.V. Hickman (QVMAG QVM:13:7361). Only images examined.

Other material examined. Known only from the type specimen.

Diagnosis. *Ariadna major* can be differentiated from all other species of *Ariadna* known from Tasmania by it having a uniform grey abdomen, lacking transverse abdominal markings.

Distribution. *Ariadna major* is known only from the type locality of Mount Hobbs, in eastern Tasmania (Fig. 19).

Remarks. The holotype for *A. major* was only available for examination through images provided to the authors, these images were not of publication quality. No mature representative specimens were present in the material examined, similar immature specimens were present, but due to variation in key diagnostic features between juveniles and mature specimens, these could not confidently be assigned to *A. major*. Specimens of *A. alta* **sp. nov.** were recorded from the same type locality as *A. major* (Mount Hobbs, south east Tasmania), but *A. alta* **sp. nov.** clearly differs from *A. major* (see diagnosis of *A. alta* **sp. nov.**,) and sympatry has been recorded for other Australian *Ariadna* (for example Marsh *et al.* 2018) and is frequent in the species described in this manuscript.

Ariadna muscosa Hickman, 1929

Figs 19, 24a–h, 24a–c

Ariadna muscosa Hickman, 1929: 103–106, figs 3A–C.

Type material. *Holotype* ♂. AUSTRALIA: *Tasmania:* Launceston, north Tasmania, 17 May 1928, 41.45°S, 147.17°E, Launceston (QVMAG QVM:13:7339).

Paratype ♀. Same data as holotype (QVMAG QVM:13:7339). Only images examined of paratype and holotype.

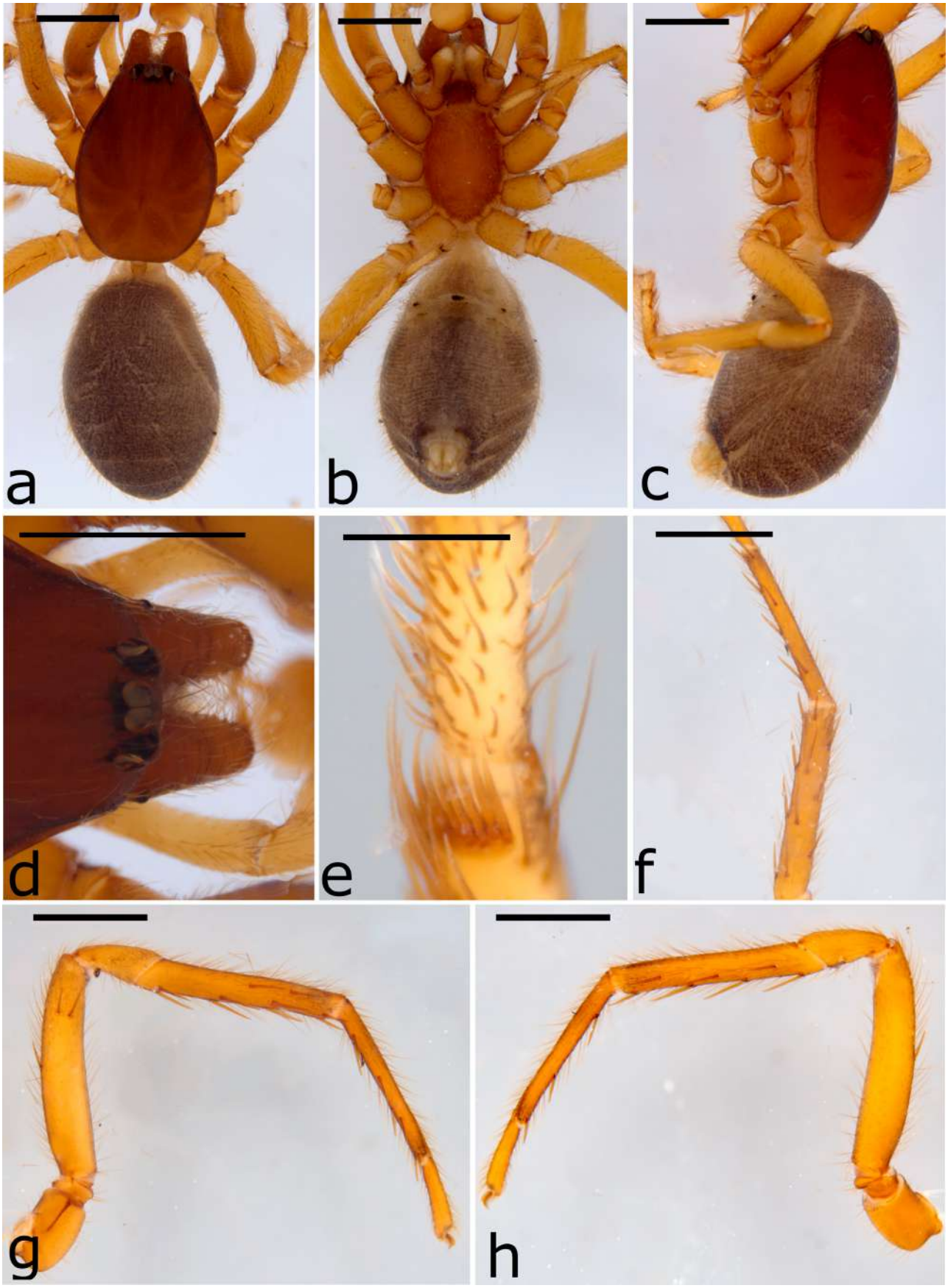

FIGURE 24. *Ariadna muscosa* ♂ (AM KS.034878); Punchbowl, Launceston (Tasmania); a habitus, dorsal view; b same, ventral view; c same, lateral view; d eyes, dorsal view; e left metatarsus IV, preening comb, retrolateral view; f left leg I, ventral view; g same prolateral view; h same retrolateral view. Scale bars a–d, f–h = 1mm, e = 0.25mm.

FIGURE 25. *Ariadna muscosa* ♂ (AM KS.034878); Punchbowl, Launceston (Tasmania); a left pedipalp, prolateral view; b same, retrolateral view; c same, dorsal view. Scale bar = 0.5mm.

Other material examined. Australia: *Tasmania:* 1 ♂, Launceston, Punchbowl, in moss, 41.45°S; 147.20°E, 01 June 1931 (AM KS.034878); 3 ♂, Launceston, Cataract Gorge, ex pitfall trap, site 4, 41.44°S, 147.11°E; 31 December 2001, *Migas plomleyi* survey (QVMAG QVM:2020:13:0110).

Diagnosis. *Ariadna muscosa* is closest to *A. crypticola* **sp. nov.**, *A. ferrogrisea* **sp. nov.** and *A. subnubilum* **sp. nov.**. It can be differentiated from *A. crypticola* **sp. nov.** by the less pronounced prolateral projection on the cymbium, by the longer and thinner pedipalp tibia and by the embolus, which lacks a defined apical hook in *A. muscosa* (Fig. 25a–c cf. Fig. 14a–c); it can also be distinguished by having seven macrosetae in the preening comb on metatarsus IV, compared to five macrosetae in *A. crypticola* **sp. nov**. *Ariadna muscosa* can be distinguished from *A. ferrogrisea* by the pattern and lesser number of macrosetae on the tibia and metatarsus of leg I (Fig. 24f–h cf. Fig. 15f–h) and by the shape of the pedipalp cymbium, which has a more pronounced prolateral extension in *A. ferrogrisea* **sp. nov.** (Fig. 25c cf. Fig. 16c). The species can be differentiated from *A. subnubilum* **sp. nov.** by the lack of transverse abdominal markings in *A. subnubilum* **sp. nov.** (Fig. 24a cf. Fig. 31a); by the greater width compared to length of the pedipalp tibia of *A. subnubilum* **sp. nov.** (Fig. 25a, b cf. Fig. 32a, b) and supported by molecular sequencing, with an interspecific divergence of 11.6% (Table 2).

Description. ♂ (based on AM KS.034878). Total length 5.2.

Colour in ethanol: Carapace orange brown, with faint pallid areas extending out from fovea, sparse brown setae. Sternum orange brown, lighter towards the centre; with scattered sparse, long dark setae; labium red, fading to pale cream anteriorly; maxillae and chelicerae red brown. Abdomen dorsally dark grey, with faint, narrow white striations posteriorly, ventrally dark grey, darker medially. Legs golden yellow-brown, with sparse brown setae (Fig. 24a–h).

Cephalothorax: 2.4 long, 1.7 wide**.** Carapace oval, with a broad neck anteriorly, edges gently undulating and rebordered, fovea a shallow indentation (Fig. 24a), from lateral view carapace raised slightly, highest mid-way between fovea and eye group (Fig. 24c). Labium narrowed anteriorly, about ¾ length of maxillae; chelicerae with basal transverse ridge, retromargin with single tooth, promargin with three teeth; sternum rounded oval, convex, with precoxal triangles and with smaller, broadly triangular intercoxal extensions (Fig. 24b). Posterior eye row recurved, eye group occupying 0.6 of carapace width (Fig. 24d).

Abdomen: 2.8 long; with covering of sparse fine macrosetae (Fig. 24a).

Legs: Leg length ratio: I>II>IV>III. Leg I femur 1.9, patella 0.7, tibia 1.6, metatarsus 1.4, tarsus 0.7; Leg II femur 2.0, patella 0.6, tibia 1.5, metatarsus 0.8, tarsus 0.5; Leg III femur 1.5, patella 0.5, tibia 1.1, metatarsus 0.9, tarsus 0.5; Leg IV femur 1.7, patella 0.7, tibia 1.2, metatarsus 1.0, tarsus 0.5. Femur I bowed in dorsal view. Macrosetae: Leg I femur d1, dp2ap; tibia p1-1, pv1-1-1-1ap, rv1-1-1-1ap, r1-1-1; metatarsus pv1-1-1-1ap, rv1-1-1ap. Leg II femur d1, dp1ap; tibia p1-1-2, pv1ap, rv1-1-1-1ap, r1; metatarsus p1-1-1ap, r1-1-1ap. Leg IV femur d1-1, dp1ap; tibia p1-1, pr1ap, v1-1, metatarsus 1-1-1ap, rv2-1. Retrolateral distal preening comb with 7 spines. STC I, II with 9 teeth (Fig. 24e), ITC with small tooth. Tarsi with sparse distal ventral scopulose setae.

Pedipalp: Tibia 1.4 times the length of the cymbium; cymbium rounded square shape, with not well defined anterior prolateral extension, scopulose setae anteriorly; bulb pyramidal in lateral view, embolus long, thin with slight hook apically (Fig. 25a–c).

Distribution. From localities around Launceston, in northern Tasmania (Fig. 19).

Variation. There was little variation in the material examined. The embolus of each specimen was characteristic, lacking an apical hook.

DNA barcode. A 653 base-pair (bp) fragment of the mitochondrial (mt) DNA cytochrome *c* oxidase I (COI) gene (DNA barcode) was sequenced for specimen QVM:2020:13:0110 (see other material information above) and is deposited in BOLD (Process ID OZBOL2576-21) and GenBank (accession number ####). The base composition of the DNA barcode sequence is 19.9% A, 40.58% T, 12.86% C and 26.65% G (G + C = 39.51).

Remarks. The holotype and paratype of *A. muscosa* were examined by images provided by J. Douglas, QVMAG, and could not be measured and examined in detail. We here provide a redescription based on more recently collected material that is representative of this species.

Ariadna segmentata Simon, 1893

Figs 26a–h, 27a–c, 28a–h, 29a–b, 30

Ariadna segmentata Simon, 1893: 306, Rainbow 1911: 136; Hickman 1967: 41, 63–65, pl. VII, fig. 3.

Type material. *Holotype* ♀. AUSTRALIA: *Tasmania:* Launceston, 41.44 S, 147.14 E, Simson leg. (MNHN AR16175). Only images examined.

Other material examined. AUSTRALIA: *Tasmania*: 1 ♂, Launceston, 41.45°S; 147.20°E (QVMAG QVM:13:42352); 1 ♀, Launceston, Panubra Street, 41.46650°S, 147.15290°E, 4 May 1972 (QVMAG QVM:2019:13:0223); 1 ♀, South Launceston, 41.46°S, 147.15°E **(**QVMAG QVM:2018:13:0419); 1 ♀ (QVMAG QVM:2020:13:0112); 1 ♀, no location (QVMAG QVM:13:42316); 1 ♀, Hadspen, 41.30°S, 147.05°E, L. McCommon, 11 July 1992 (QVMAG QVM:13:6345); 1 ♀, Bracknell, 41.65°S, 146.93°E, 15 February 1964 (QVMAG QVM:2020:13:0104); 1 ♂, Trevallyn, 41.44°S, 147.12°E, 16 October 1982 (QVMAG QVM:2020:13:0109); 1 ♂, Mount Field National Park, Russel Falls Walk, 42.67°S, 146.58°E, 14 January 2002 (QVMAG QVM:2020:13:0108); 1 ♂, Hobart, 42.88°S, 147.32°E, 30 July 1978 (TMAG J1362); 1 ♀, Port Davey, 42.28°S, 145.97°E (TMAG J1759); 1 ♀, west Hobart, 42.88°S, 147.33°E (TMAG J666); 1 ♀, New Town, 42.86°S, 147.30°E (TMAG J1425); 1 ♀, Bruny National Park, Bush Blitz expedition, 43.40°S, 147.28°E (TMAG J6271); 1 ♀, New Town, 42.86°S, 147.31°E, June 1948 (AM KS.29179); 1 ♀, Great Lake, 41.88°S, 146.71°E, 26 May 1964 (AM KS.29164); 1 ♀, Mount Wellington, 42.90°S, 147.24°E, 12 December 1956 (AM KS.29165); 1 ♂, Launceston, 41.44°S, 147.10°E (AM KS.29188); 1 ♀, Burnie, 41.05°S, 145.90°E (AM KS.2909).

Diagnosis. *Ariadna segmentata* is closest to *A. alta* **sp. nov.**, *A. amabilia* **sp. nov.**, and *A. thylacinus* **sp. nov.**. It is differentiated from these species by the presence of a longitudinal pale median mark anteriorly on the sternum (Fig. 26b, 28b cf. Figs 6b, 8b, 10b, 33b, 35b). It can further be differentiated from *A. amabilia* **sp. nov.** and *A. thylacinus* **sp. nov.**, by the rounded oblong bulb, with a relatively short and thick embolus, which is bent from its midpoint and by the cymbium with a well-defined prolateral extension (Fig. 27a–c cf. Figs 9a–c, 35a–c), and from *A. alta* **sp. nov.** by the flatter, less domed carapace, when viewed laterally (Fig. 28b cf. Fig. 5c) and by the absence of a dual row of macrosetae prolaterally on tibia I (Fig. 28f, g cf. Fig. 5f, g). It can be distinguished from *A. alta* **sp. nov.** and *A. amabilia* **sp. nov.**, by the form of the anterior receptaculum, which is unilobed and hooked apically (Fig. 29a–b cf. Figs 7a–b, 11a–b).

Description. ♂ (based on QVMAG QVM:13:42352). Total length 8.3.

Colour in ethanol: Carapace red brown, with sparse, scattered dark setae, denser towards edges; sternum red brown, with longitudinal pale line anteriorly, with sparse long black setae; maxillae and labium mid brown, paler in colour apically, chelicerae red brown; abdomen dorsally pale cream, with six dark grey chevrons, ventrally dark grey, with pale yellow book lungs, spinnerets pale yellow. red brown, with faint cream longitudinal patches dorsally and on joints (Fig. 26a–h).

Cephalothorax: 4.8 long, 2.7 wide, 1.9 high. Carapace elongated oblong, narrowed anteriorly, carapace flattened, highest just posterior to fovea (Fig. 26a, c); fovea shallow pit. Labium narrowed anteriorly, about ¾ length of

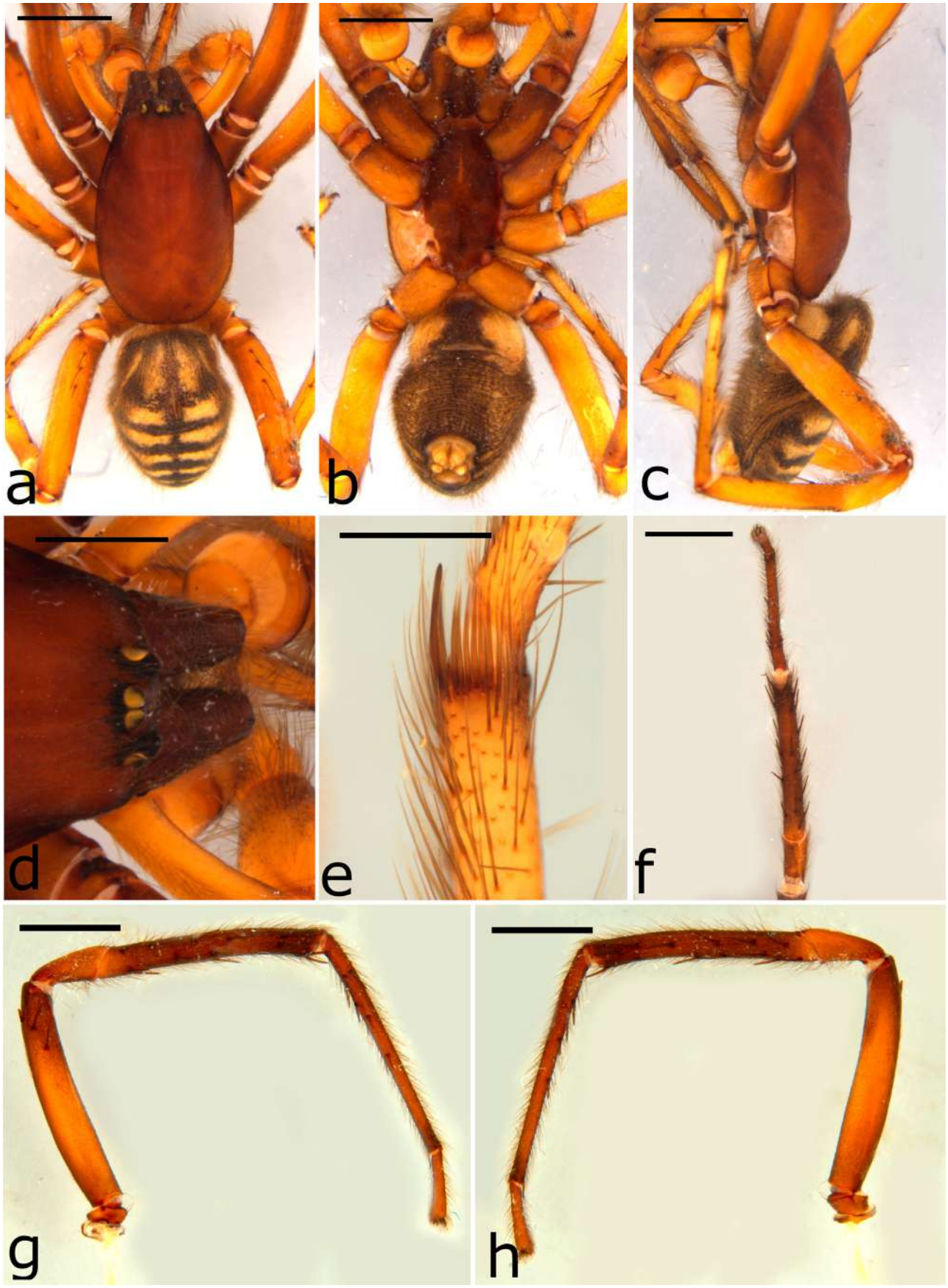

FIGURE 26. *Ariadna segmentata*. ♂ (QVMAG QVM:13:42352); Launceston (Tasmania); a habitus, dorsal view; b same, ventral view; c same, lateral view; d eyes, dorsal view; e left metatarsus IV, preening comb, retrolateral view; f left leg I, ventral view; g same prolateral view; h same retrolateral view. Scale bars a–c, f–h = 2mm, d = 1mm. e = 0.5mm.

maxillae; chelicerae hypognathous, with basal transverse ridge, retromargin with single tooth, promargin with three teeth; sternum elongated oval, with precoxal triangles and with smaller, rounded intercoxal extensions (Fig. 26b). Eye group 0.93 wide, 0.54 of anterior carapace width. Posterior eye row straight, eye group on extensions projecting anteriorly over clypeus, eye group occupying about a half of carapace width.

Abdomen: 3.5 long; with sparse macrosetae (Fig. 26a).

Legs: Leg length ratio I>II>IV>III. Leg I femur 4.6, patella 1.7, tibia 4.2, metatarsus 4.1, tarsus 1.4. Leg II femur 4.1, patella 0.8, tibia 3.9, metatarsus 5.2, tarsus 1.4. Leg III femur 3.5, patella 0.7, tibia 2.1, metatarsus 2.8, tarsus 1.1. Leg IV femur 3.5, patella 1.5, tibia 2.9, metatarsus 3.5, tarsus 1.0. Femur I bowed in dorsal view. Macrosetae: Leg I femur d1ap, dp2ap; tibia p1-1-1-1-2, pv1-1-1-1ap, v1-1-1ap, rv1-1-1-1, r1-1-1-1-1-1; metatarsus pv2-1-1, v1, rv2-1-1-1ap. Leg II femur d1-1, dp1ap; tibia p1-1-2, pv1-1ap, rv1-1-1-1ap, r1-1; metatarsus p2-1-2-1, pv1, rv1-1-1-1-1-1ap. Leg IV femur d1-1-1, dp1ap; tibia p1-1, pv1-1-1ap, rv1-1-1; metatarsus p1-1, rv1-1ap, r1-2-2-1ap. Retrolateral distal preening comb with 6 spines (Fig. 26e). STC I, II with 9 long teeth, ITC with single tooth, tarsal claws I-III reduced in size, tarsal claws IV normal. Tarsi with distal ventral scopulose setae.

Pedipalp: Tibia bulbous and rounded sinuous, about 2x the length of the cymbium; cymbium rounded square, triangular apically with elongate setae; bulb rounded oblong, embolus originating medially from ventral edge of bulb, short, broad and curved from about ½ of its length, hooked apically (Fig. 27a–c).

FIGURE 27. *Ariadna segmentata*. ♂ (QVMAG QVM:13:42352); Launceston (Tasmania); a left pedipalp, prolateral view; b same, retrolateral view; c same, dorsal view. Scale bar = 1mm.

Description. ♀ (based on QVMAG QVM:2019:13:0223). Total length 15.3.

Colour in ethanol: Carapace dark, reddish brown, darker anteriorly, cover of black setae; sternum dark red-brown, with pale brown cream longitudinal median strip anteriorly, with moderately long, scattered dark setae, labium darker brown, paler apically, maxillae red brown, paler apically, chelicerae dark red brown with dense, long, black setae; abdomen dorsally dark grey, with alternating faint dark and paler cream, not well defined chevrons, ventrally dark grey with yellow book lungs and yellow spinnerets. Legs red brown, with paler yellow longitudinal patches dorsally and on joints, covered with long dark setae (Fig. 28a–h).

Cephalothorax: 7.1 long, 3.6 wide, 3.2 high. Carapace elongated oblong, with broad, square 'neck' anteriorly, anterior edge convex, posteriorly with defined median indent, fovea an ill-defined shallow pit (Fig. 28a); lateral profile low flattened dome, highest point posterior to eye group (Fig. 28c). Labium narrowed anteriorly, about ¾ length of maxillae. Chelicerae broad, robust with basal transverse ridge, retromargin with single tooth, promargin with three teeth. Sternum elongated oval with defined precoxal triangles and with rounded triangular intercoxal extensions (Fig. 28b). Eye group 1.30 wide, 0.54 of anterior carapace width. Posterior eye row slightly recurved, eyes small, three pairs of eyes widely separated (Fig. 28d).

Abdomen: 8.2 long. Covered in fine dense setae (Fig. 28a).

Legs: Leg length ratio: II>I>IV>III. Leg I femur 5.0, patella 2.0, tibia 3.6, metatarsus 2.6, tarsus 1.1. Leg II femur 4.6, patella 2.2, tibia 4.5, metatarsus 3.7, tarsus 1.1. Leg III femur 2.5, patella 2.3, tibia 2.7, metatarsus 1.9, tarsus 0.8. Leg IV femur 3.8, patella 2.0, tibia 3.3, metatarsus 2.5, tarsus 0.8. Femur I bowed in dorsal view. Macrosetae:

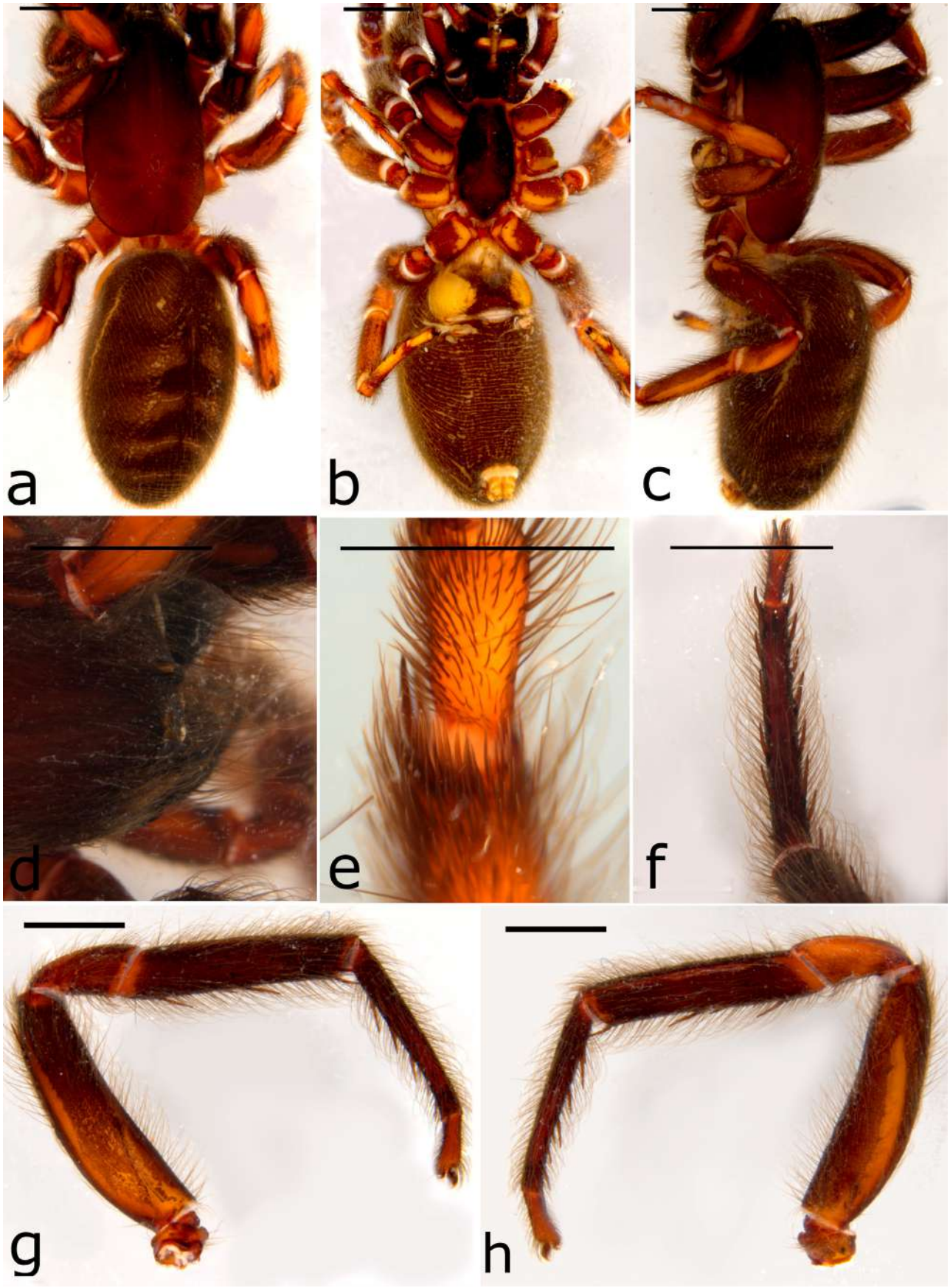

FIGURE 28. *Ariadna segmentata*, ♀ (QVMAG QVM:2019:13:0223); Launceston (Tasmania); a habitus, dorsal view; b same, ventral view; c same, lateral view; d eyes, dorsal view; e left metatarsus IV, preening comb, retrolateral view; f left leg I, ventral view; g same prolateral view; h same retrolateral view. Scale bars a–d, f–h = 2mm, e = 1.

Leg I femur: d1, dp3ap; tibia dp1-1-1-1-1, p1-1-1, pv1-1-1ap, rv1-1-1ap, r1-1-1; metatarsus pv1-1-1-1-1-1-1ap, v1, rv1-1-1-1-1-1-1-1. Leg II d1, dp3ap; tibia p1-1-2-2, pv1ap, rv1-1-1-1-1-1ap; metatarsus pv2-1-1-1-1-1ap, v1, rv1-1-1-1-1-1-1ap. Leg IV femur d1-1-1, d1ap; tibia p1-1-1-1, pv1ap, v1; metatarsus p1, v1, rv1-1-1-1ap, v1-1ap. Retrolateral distal preening comb with 6 macrosetae (Fig. 28e). STC I, II with 6 teeth, ITC with small tooth.

Pedipalp: Pedipalp with single, toothless claw. Dense clusters of proventral macrosetae on tarsus and tibia. Dense scopulose setae on tarsus.

Genitalia: Anterior receptaculum hooked apically in ventral view, unilobed (Fig. 29a–b).

Variation. In females, the colour of *A. segmentata* is quite variable, ranging from dark reddish brown as illustrated by the exemplar specimen, to a much lighter cream brown, with more distinct transverse abdominal markings. In some very dark specimens, the abdominal markings are very faint; but the pale, longitudinal median mark anteriorly on the sternum was present in all species examined. There was consistency in the structure of the male pedipalps and in the number of macrosetae in the preening comb on metatarsus IV and macrosetae on tibia and metatarsus of leg I of males and females.

Remarks. The holotype of *A. segmentata* was examined by images provided by E. Leguin, MNHN and could not be measured and examined in detail. We here provide a redescription based on a more recently collected material that is representative of this species.

Distribution. Widespread across Tasmania (Fig. 30).

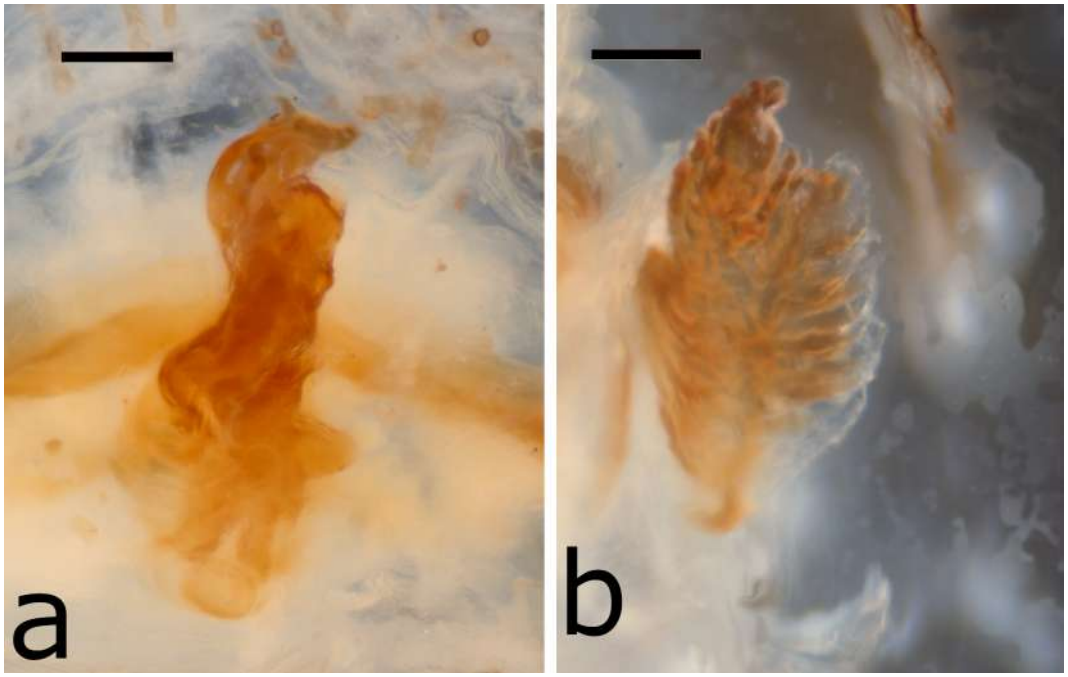

FIGURE 29. *Ariadna segmentata*, ♀ (QVMAG QVM:2018:13:0419); south Launceston (Tasmania); anterior receptaculum a. ventral view; b. same lateral view. Scale bars=0.2mm.

Ariadna subnubilum sp. nov. (TMAG J6266)

Figs 31a–h, 32a–c, 33

http://zoobank.org/NomenclaturalActs/485dae32-c304-4f07-9290-bf7860d29343

Type material. *Holotype* ♂. AUSTRALIA: *Tasmania:* 5km ENE McPartlan Pass, 42.83796°S, 146.24072°E, 350m, February 2002, pitfall trap, coll. D. Driscoll (TMAG J6266).

Other material examined. Known only from the type specimen.

Etymology. The specific epithet is a Latin adjective, meaning 'somewhat overcast' and refers to the mottled light and dark grey colour of the species' abdomen.

Diagnosis. *Ariadna subnubilum* **sp. nov**. is most similar to *A. crypticola* **sp. nov.**, *A. ferrogrisea* **sp. nov.** *and A. muscosa. Ariadna subnubilum* **sp. nov.** is differentiated from *A. crypticola* **sp. nov.** by having a squarer cymbium, with a less well defined prolateral extension than in *A. crypticola* **sp. nov.** (Fig. 32c cf. Fig. 14c), and by the lack

of a transverse abdominal pattern (Fig. 31a cf. Fig. 13a). It can be differentiated from *A. ferrogrisea* **sp. nov.** by the pattern and number of macrosetae on tibia and metatarsus of leg I, which are denser in *A. ferrogrisea* **sp. nov.** (Fig. 31f-h cf. Fig. 15f–h), by the lack of transverse abdominal markings in *A. subnubilum* **sp. nov.** (Fig. 31a cf. Fig. 15a) and by the shape of the pedipalp bulb, which is pyramidal in *A. ferrogrisea* **sp. nov.**, but is rounded oblong in *A. subnubilum* **sp. nov.** (Fig. 32a, b cf. Fig. 16a, b). The species can be distinguished from *A. muscosa* by the lack of transverse abdominal markings in *A. subnubilum* **sp. nov.** (Fig. 31a cf. Fig. 24a); by the greater width compared to length of the pedipalp tibia of *A. subnubilum* **sp. nov.** (Fig. 32a, b cf. Fig. 25a, b) and molecular sequencing, with an interspecies divergence of 11.6% (Table 2).

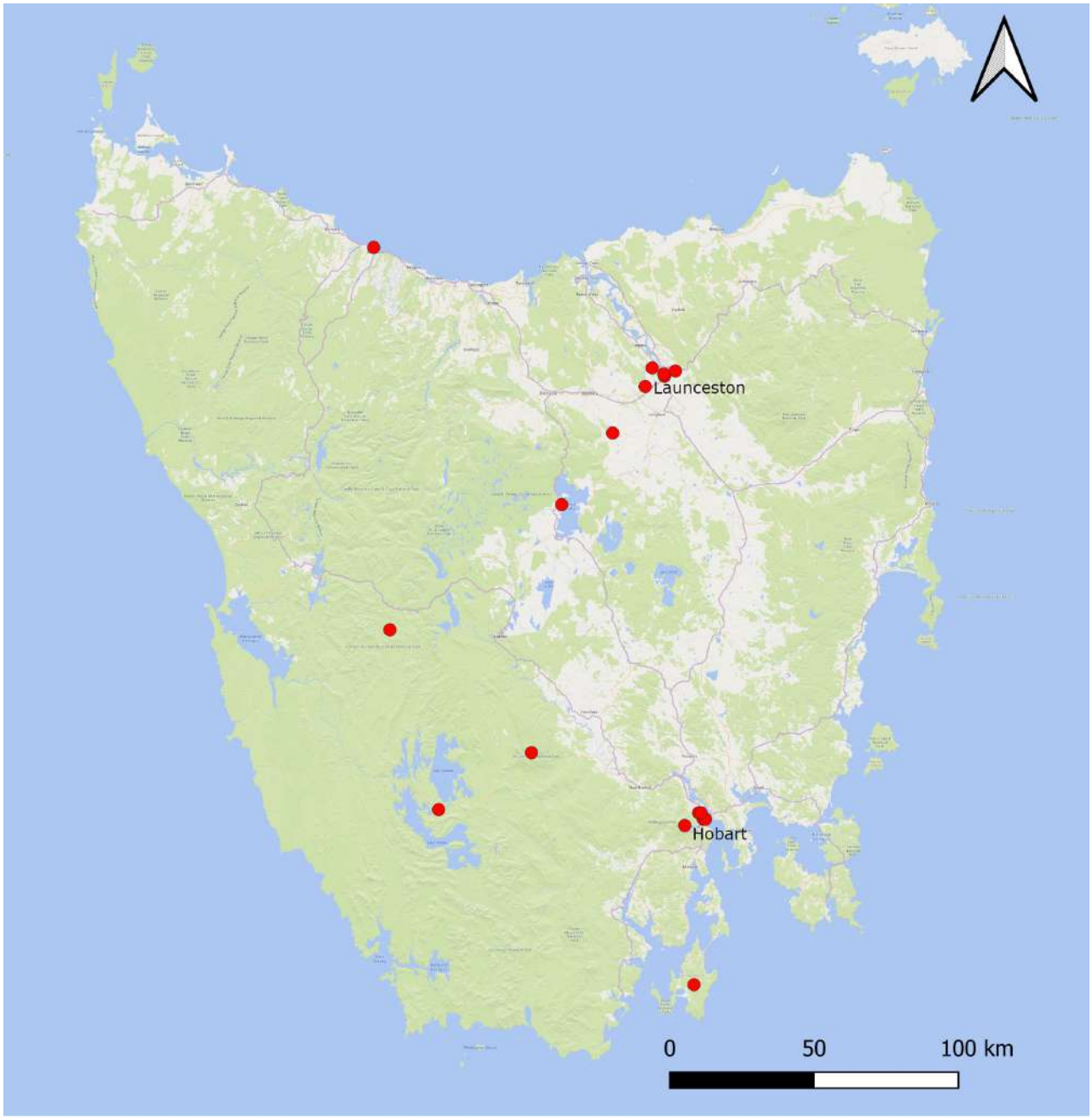

FIGURE 30. Distribution of *Ariadna segmentata* (red dots).

Description. ♂ (based on holotype; TMAG J6266). Total length 4.6.

Colour in ethanol: Carapace dark red brown, darker anteriorly; with sparse, scattered dark setae, denser anteriorly. Sternum mid red brown, with black long brown setae. Maxillae and labium mid brown, paler in colour apically; chelicerae dark red brown. Abdomen dorsally light grey with mottled darker grey patches; ventrally same. Legs golden yellow brown, with dark setae (Fig. 31a–h).

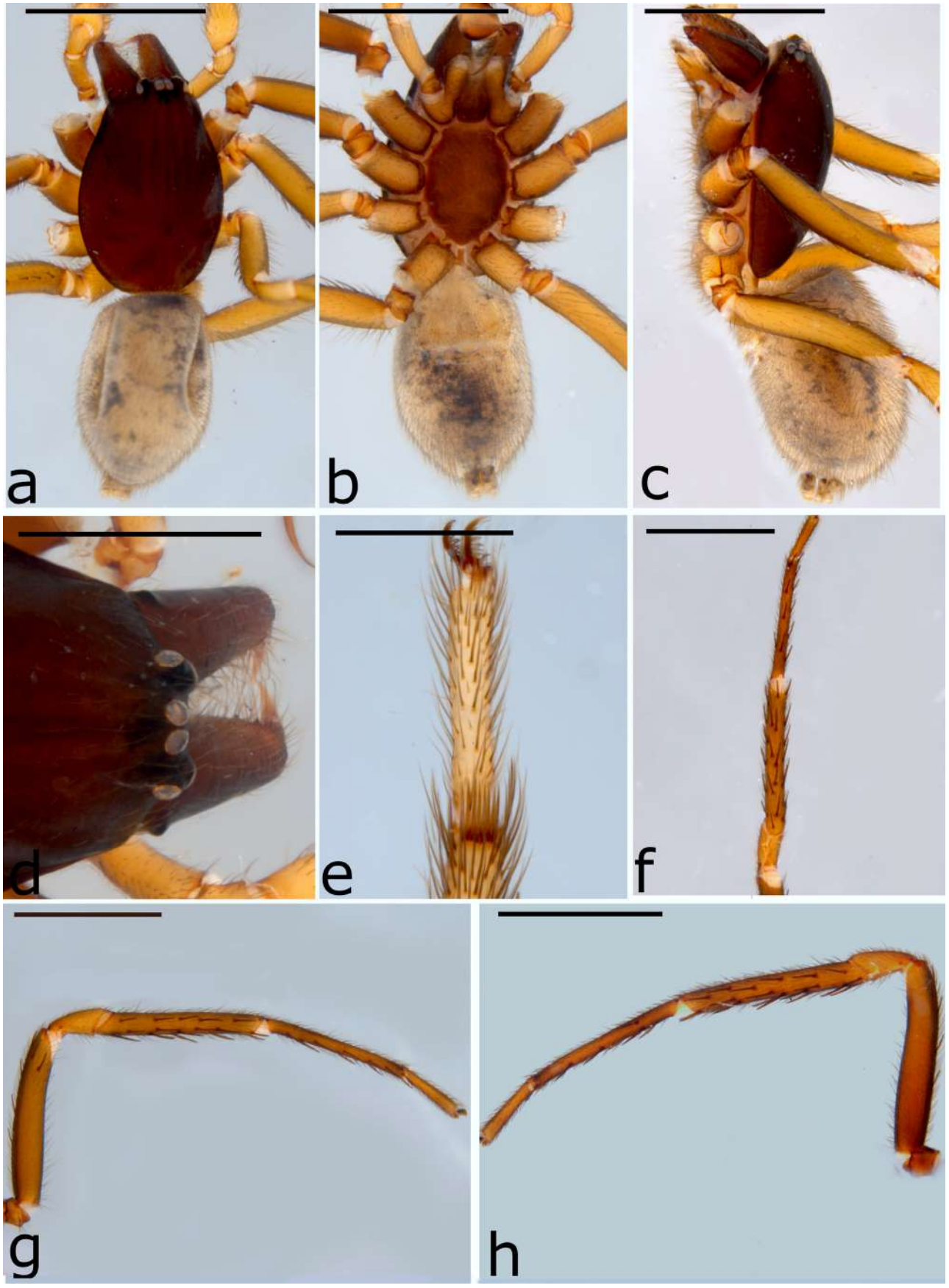

FIGURE 31. *Ariadna subnubilum* **sp. nov.** ♂ holotype (TMAG J6266); McPartlan Pass (Tasmania); a habitus, dorsal view; b same, ventral view; c same, lateral view; d eyes, dorsal view; e left metatarsus IV, preening comb, retrolateral view; f left leg I, ventral view; g same prolateral view; h same retrolateral view. Scale bars a –c = 2mm, d = 1mm, e = 0.5mm, f–h = 2mm.

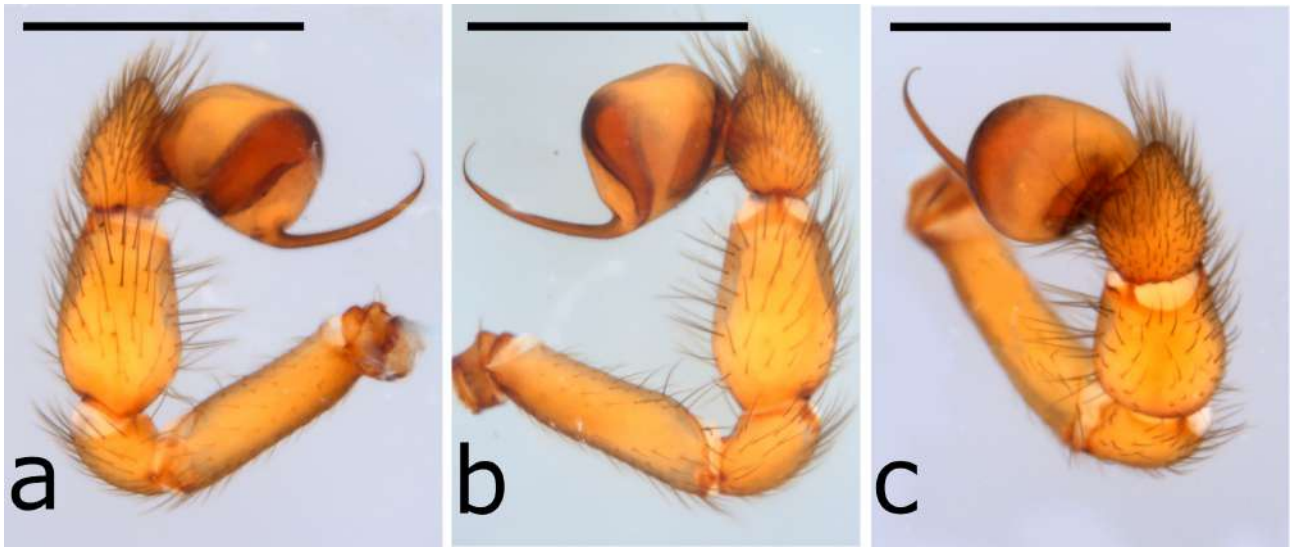

FIGURE 32. *Ariadna subnubilum* **sp. nov.** ♂ holotype (TMAG J6266); McPartlan Pass (Tasmania); a left pedipalp, prolateral view; b same, retrolateral view; c same, dorsal view. Scale bars = 1mm.

Cephalothorax: 2.4 long, 1.6 wide. Carapace broadly oval, anteriorly with broad neck, caput raised towards anterior, fovea shallow (Fig. 31a); in lateral view highest at midpoint between fovea and eyes (Fig. 31c). Labium narrowed anteriorly, about ¾ length of maxillae; chelicerae semi-porrect, with basal transverse ridge, retromargin with single tooth, promargin with three teeth; sternum rounded oval, with precoxal triangles and with smaller, rounded intercoxal extensions (Fig. 31b). Posterior eye row slightly recurved, eye group on prominent extension projecting anteriorly over clypeus, eye group occupying 0.6 of carapace width.

Abdomen: 2.2 long; with a covering of dense, fine setae (Fig. 31a)

Legs: Leg length ratio: I>II>IV>III. Leg I femur 2.4, patella 0.8, tibia 2.1, metatarsus 2.1, tarsus 0.9. Leg II femur 2.2, patella 0.7, tibia 2.2, metatarsus 1.9, tarsus 1.0. Leg III femur 1.5, patella 0.5, tibia 1.5, metatarsus 1.4, tarsus 0.7. Leg IV femur 2.0, patella 0.6, tibia 1.5, metatarsus 1.4, tarsus 0.6. Leg I Femur I bowed in dorsal view. Macrosetae: leg I femur d1-1-1-1ap, dp2ap; tibia p1-1-1-1-1, pv1-1-1-1-1ap, v1-1-1-1, rv1-1-1-1-1ap, r1-1-1-1-1-1; metatarsus pv1-1-1-1-1-1ap, rv1-1-1-1, r1. Leg II femur d1-1-1-1ap, dp1ap; tibia pv1-1-1, v1-1-1ap, rv1-1-1-1-1-1-1-1-1ap, r1-1-1-1-1; metatarsus p1, pv1-1-1-1-1-1ap, rv1-1-1-2ap, r1. Leg IV femur d1-1-1-1, dp1ap; tibia p1-1, pv1-1-1ap, rv1-1; metatarsus p1, rv1-1-1-1ap, r1. Retrolateral distal preening comb with 7 spines (Fig. 31e). STC I, II with 9 long teeth, ITC with single tooth, Tarsi with sparse distal ventral scopulose setae.

Pedipalp: Tibia short, bulbous and ventrally expanded, about 1 1/2 the length of the cymbium; cymbium rounded square, with prolateral triangular extension, apically with elongate setae; bulb rounded oblong, embolus originating from ventral edge of bulb, quite broad, curved and hooked apically (Fig. 32a–c).

Variation. Known only from the type specimen.

Distribution. Known only from McPartlan Pass, northwest Tasmania (Fig. 33).

DNA barcode. A 655 base-pair (bp) fragment of the mitochondrial (mt) DNA cytochrome *c* oxidase I (COI) gene (DNA barcode) was sequenced for specimen TMAG J6266 (see Holotype information above) and is deposited in BOLD (Process ID OZBOL2584-21) and GenBank (accession number ####). The base composition of the DNA barcode sequence is 21.07% A, 40.15% T, 13.59% C and 25.19% G (G + C = 38.78%).

***Ariadna thylacinus* sp. nov.**

Figs 34a–h, 35a–c, 36a–h, 33

http://zoobank.org/NomenclaturalActs/35549e43-5f97-4724-a240-9aef8954143c

Type material. *Holotype* ♂. AUSTRALIA: *Tasmania:* Flat Rock, 42.99°S; 147.95°E, coll. R. Raven, Bush Blitz expedition, 2010 (TMAG J5352).

Paratype ♀*:* same as holotype (TMAG J5353).

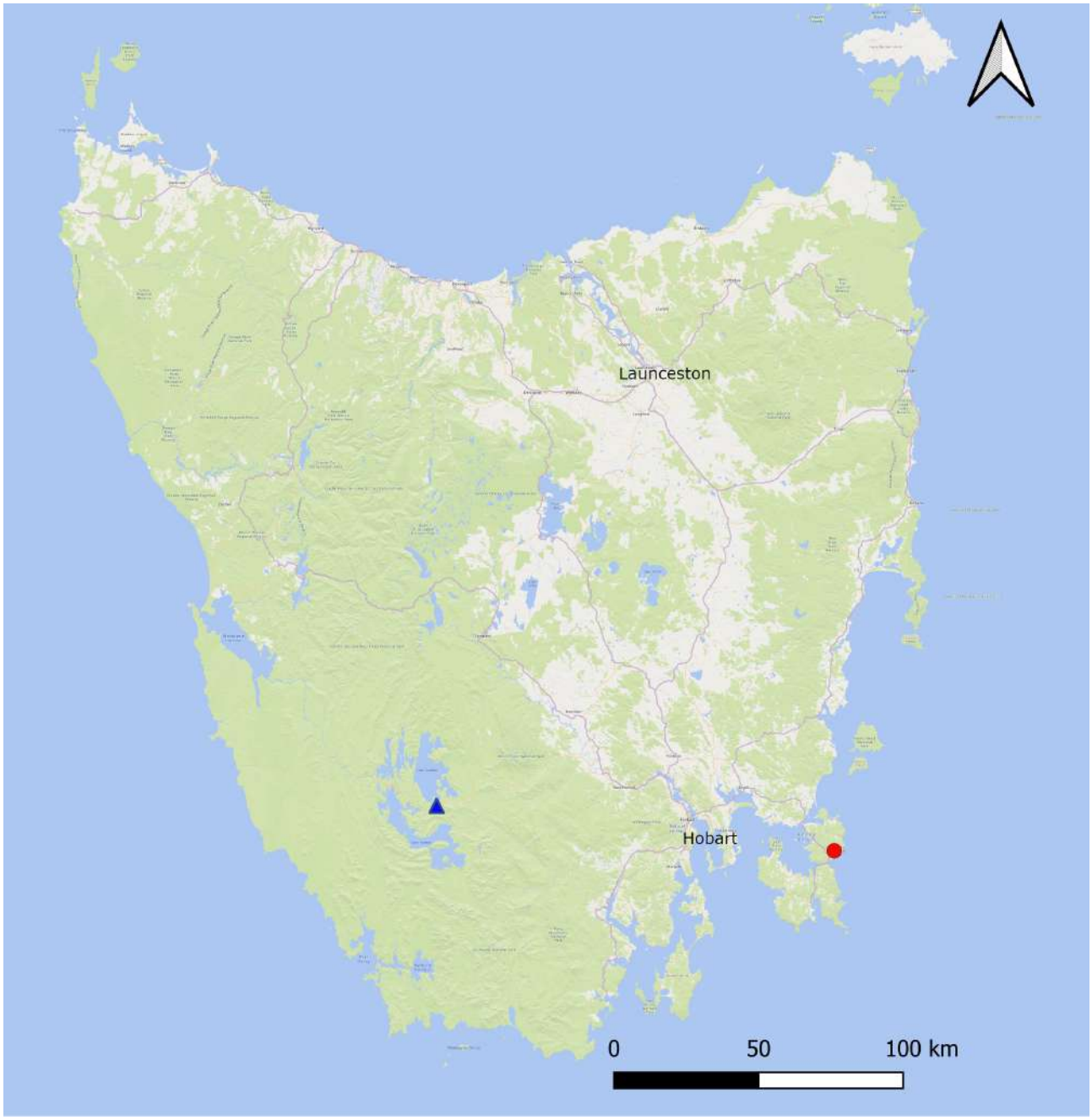

FIGURE 33. Distribution of *Ariadna subnubilum* **sp. nov.** (blue triangle) and *Ariadna thylacinus* **sp. nov.** (red circle).

Other material examined. *Tasmania:* 1 ♂, same as holotype (TMAG J4154).

Etymology. The specific epithet is a noun in apposition and refers to the similarity of the transverse striations on the abdomen of this species to those of the Tasmanian tiger, *Thylacinus cynocephalus* (Harris, 1808). It is hopefully not a predictor of the species' future conservation status.

Diagnosis. *Ariadna thylacinus* **sp. nov.** is closest to *A. alta* **sp. nov.**, *A. amabilia* **sp. nov.** and *A. segmentata.* It can be separated from *A. segmentata* by the male palp having a squared bulb, with a prominent rounded ventral projection which the embolus arises, and by the embolus arising from the dorso-central portion of the bulb (Fig. 35a, b cf. Figs 9a–c, 27a–c). It is differentiated from *A. alta* **sp. nov.** by the lack of dual row of macrosetae proventrally on tibia I of females (Fig. 36f, g cf. Fig. 6f, g). It can be differentiated from *A. amabilia* **sp. nov.** by the oblong-square pedipalp bulb and the sinuous shape of the apical section of the embolus of *A. thylacinus* **sp. nov.**, compared to the square bulb of *A. amabilia* **sp. nov.** and the smooth curve of the embolus apically (Fig. 35a–c cf. Fig. 9a–c). *Ariadna tigrina* **sp. nov.** is from the same type locality as *A. thylacinus* **sp. nov.**, the two species can be differentiated by

FIGURE 34. *Ariadna thylacinus* **sp. nov.** ♂ holotype (TMAG J4154); Flat Rock (Tasmania); a habitus, dorsal view; b same, ventral view; c same, lateral view; d eyes, dorsal view; e left metatarsus IV, preening comb, retrolateral view; f left leg I, ventral view; g same prolateral view; h same retrolateral view. Scale bars a–c, d = 1mm, e = 0.5mm, f–h = 2mm.

FIGURE 35. *Ariadna thylacinus* **sp. nov.** ♂ holotype (TMAG J4154a); Flat Rock (Tasmania); a left pedipalp, prolateral view; b same, retrolateral view; c same, dorsal view. Scale bars = 1mm.

the shape of the pedipalp bulb, which is pyramidal in *A. tigrina* **sp. nov.**, but rounded oblong in *A. thylacinus* **sp. nov.***;* by the shape of the embolus, which is fine, smoothly curved and hooked apically in *A. tigrina* **sp. nov.**, but is sinuous apically in *A. thylacinus* **sp. nov.** and by the pedipalp tibia, which is inflated in *A. thylacinus* **sp. nov.** (Fig. 35a–c cf. Fig. 38a–c).

Description. ♂ (based on holotype TMAG J5352). Total length 8.5.

Colour in ethanol: Carapace dark, reddish brown, becoming darker anteriorly, with raised caput area lighter red brown, bordered by darker red brown; sternum orange brown, maxillae orange brown, paler in colour apically, chelicerae reddish brown; abdomen dorsally pale cream, with nine dark grey, clearly defined chevrons, extended and joined medially, ventrally cream with dark patches centrally and laterally. Legs uniform golden brown. Figs 34a–h.

Cephalothorax: 4.6 long, 3.1 wide, 2.5 high. Carapace oval, narrowing anteriorly, fovea a shallow indented pit, scattered sparse, dark setae, denser anteriorly (Fig. 34a); caput raised towards anterior, highest just behind posterior eye row (Fig. 34c). Labium narrowed anteriorly, about ¾ length of maxillae; chelicerae semi porrect with basal transverse ridge, retromargin with single tooth, promargin with three teeth; sternum elongated oval with precoxal triangles and with smaller, rounded intercoxal extensions, with sparse black setae (Fig. 34b). Eye group 1.0 wide, 0.6 of anterior carapace width; posterior eye row straight, eye group occupying about a half of carapace width (Fig. 34d).

Abdomen: 3.9 long; oval and tapering in shape, covered in sparse setae (Fig. 34a).

Legs: Leg ratio: I>II>IV>III. Leg I femur 4.0, patella 1.3, tibia 3.7, metatarsus 3.7, tarsus 1.4. Leg II femur 4.0, patella 1.3, tibia 3.9, metatarsus 3.4, tarsus 1.3. Leg III femur 2.9, patella 1.3, tibia 2.1, metatarsus 2.0, tarsus 1.0. Leg IV femur 3.7, patella 1.2, tibia 2.8, metatarsus 1.5, tarsus 0.6. Covered in brown setae**.** Femur I bowed in dorsal view. Macrosetae: Leg I: Femur d2/1ap-dp2ap; tibia p1-2-1-2-1-2-2-1ap, v1-1-1-1-1-1-1ap, r1-1-1-1-1-1; metatarsus p1-1-1-1broken, r1-1-1-1-1ap. Leg II macrosetae femur d1-1/0-dp2ap; tibia p1-1-2-2, v1-1-1-1-1-1, r1-1-1-1-1-2-1ap; metatarsus p2-1-2-1ap, v1-1ap, r1-1-1-1-1ap. Leg IV femur d1-1-1-dp1ap; tibia p1-1-1-1ap, r2-2-1ap; metatarsus p1, r2-1-2-1ap. Retrolateral distal preening comb with nine macrosetae (Fig. 34e). STC I, II with seven teeth, ITC with small tooth. Tarsi with distal ventral scopulose setae.

Pedipalp: tibia short, about 1 ¼ the length of the cymbium and with a ventral median indention; cymbium rounded square shape, with anterior prolateral extension. Bulb squared-pyramidal in lateral view, embolus long, curved and sinuous apically (Fig. 35a–c).

Description. ♀ (based on paratype, TMAG J5353). Total length 13.7.

Colour in ethanol: Carapace dark, reddish brown, darker around edges with sparse scattered setae, denser towards lateral edges and anteriorly. There is a pale area centrally demarking the raised caput, beginning anteriorly of fovea and bordered by darker red brown, with a darkened median line extending from fovea to half distance between fovea and eye group. Sternum red-brown, paler centrally, with moderately long, scattered dark setae. Labium darker

FIGURE 36. *Ariadna thylacinus* **sp. nov.** ♀ holotype (TMAG J4154b); Flat Rock (Tasmania); a habitus, dorsal view; b same, ventral view; c same, lateral view; d eyes, dorsal view; e left metatarsus IV, preening comb, retrolateral view; f left tibia I ventral view; g left leg I prolateral view; h same retrolateral view. Scale bars a–d, f–h = 2mm, e = 0.5mm.

brown, paler apically; maxillae orange brown, paler apically; chelicerae dark brown with dense, long, black setae. Abdomen with metallic sheen, dorsally grey, with faint paler, not well-defined chevrons; ventrally uniform grey. Legs red brown, covered with setae. Figs 36a–h.

Cephalothorax: 5.5 long,3.2 wide, 2.0 high. Carapace rounded rectangular, with broad, square 'neck' anteriorly, anterior edge convex, posteriorly with defined median indent, fovea a shallow slit (Fig. 36a); lateral profile domed, highest point at fovea (Fig. 36c). Labium narrowed anteriorly, about ¾ length of maxillae; chelicerae broad, robust with basal transverse ridge, retromargin with single tooth, promargin with three teeth; sternum elongated oval with defined precoxal triangles and with rounded triangular intercoxal extensions (Fig. 36b). Eye group 1.0 wide, 0.5 of anterior carapace width; posterior eye row slightly recurved, eyes small, three pairs of eyes widely separated, eye group occupying about 1/3 of carapace width (Fig. 36d).

Abdomen: 8.2 long. Covered in fine dense setae (Fig. 36a).

Legs: Leg ratio I>II>IV>III. Leg I femur 3.8, patella 1.4, tibia 2.8, metatarsus 2.4, tarsus 1.2. Leg II femur 3.9, patella 1.6, tibia 2.9, metatarsus 1.9, tarsus 0.9. Leg III femur 2.8, patella 1.1, tibia 2.1, metatarsus 1.7, tarsus 0.9. Leg IV femur 3.5, patella 1.1, tibia 2.3, metatarsus 2.2, tarsus 0.9. Femur I bowed in dorsal view. Macrosetae: Leg I femur dp2ap; tibia pv1, v2-2-2, pv1, rv1, v2, pv1, v2ap; metatarsus pv1-1-1, v2-2-2-2-2-1-2ap, rv1. Leg II femur dp1ap; tibia: p1-2, pv1ap, rv1-1-1-1-1ap; metatarsus: 2-2-1-2-1-2-1-2ap. Leg IV femur d1-1; tibia p1ap, v1-1/0; metatarsus rv1-1-1-1ap. Retrolateral distal preening comb with 9 macrosetae (Fig. 36e), with two long macrosetae adjacent. STC I, II with 9 teeth, ITC with small tooth. Tarsi with distal ventral scopulose setae.

Pedipalp: With single, toothless claw, dense clusters of proventral macrosetae on tarsus and tibia; with dense scopulose setae on tarsus.

Genitalia: Despite the female appearing mature externally, with a sclerotised epigynal mound (Fig. 36b), upon dissection the anterior receptaculum was very small and underdeveloped. This may be because the female was subadult, or had a physical deformity

Variation. Specimens examined were consistent in the colour and form of transverse abdominal markings and showed little variation in size.

Distribution. Known only from the type locality, Flat Rock, southeastern Tasmania (Fig. 33).

***Ariadna tigrina* sp. nov.**

Figs 37a–h, 38a–c, 39a–h, 40a–b, 41

http://zoobank.org/NomenclaturalActs/2f7f9202-8f9a-4b77-b1c8-9494748f5b02

Type material. *Holotype* ♂. AUSTRALIA: *Tasmania:* Flat Rock, 42.99°S; 147.95°E 2010, coll. R. Raven, Bush Blitz expedition (TMAG J5354).

Paratype ♀*:* same as holotype (TMAG J5355).

Other material examined. 2 ♂, 5 ♀, 11 juveniles, same data as holotype, (TMAG J4139); 4 ♂, Risdon, 42.79°S, 147.32°E, 10 September 1963, J.L. & V.V. Hickman (AM KS.29169); 2 ♂, 2 ♀, East Risdon, 42.79°S, 147.35°E, September 1975, V.V. Hickman (AM KS.29171); 1 ♀, East Risdon, 42.79°S, 147.35°E, 28 May 1936, V.V. Hickman, 2 ♂ (AM KS.29173); 3 ♂, Risdon, 42.79°S, 147.32°E, 19 May 1937, V.V. Hickman (AM KS.29205); 1 ♂, Risdon, 42.79°S, 147.32°E, 03 July 1943, V.V. Hickman (AM KS.31091); 2 ♂, 1 ♀, Fingal, 41.64°S, 147.97°E, 24 May 1928, V.V. Hickman (AM KS.29202).

Etymology. The specific epithet is an adjective meaning 'tigrine, striped' and refers to the transverse pale and dark striations on this species' abdomen.

Diagnosis. *Ariadna tigrina* **sp. nov.** is closest to *A. abbreviata* **sp. nov.**, *A. burchelli*, *A. clavata* and *A. fragilis* **sp. nov.**,. It can be distinguished from *A. abbreviata* **sp. nov.** by lacking the row of three blunt macrosetae on metatarsus I of males (Fig. 37f, g cf. Fig. 1f, g). It can be differentiated from *Ariadna burchelli* by the presence of macrosetae on the tibia of the female (Fig. 39f–h cf. plate 8, fig. 4 Hogg 1900). The species is distinguished from *A. clavata* by the number of macrosetae in the preening comb of leg IV, being seven macrosetae in *A. tigrina* **sp. nov.** and five in *A. clavata* (Figs 37e, 39e cf. figs 1e, 2h Marsh *et al.* 2018); by the number and pattern of macrosetae on the tibia and metatarsus of leg I of males and females (Figs 37f–h, 39f–h cf. figs 1a, 2a, b, d–f Marsh *et al.* 2018) and by molecular sequencing, with an interspecies divergence of 15.3% (Table 2). *Ariadna tigrina* **sp. nov.**, is differentiated

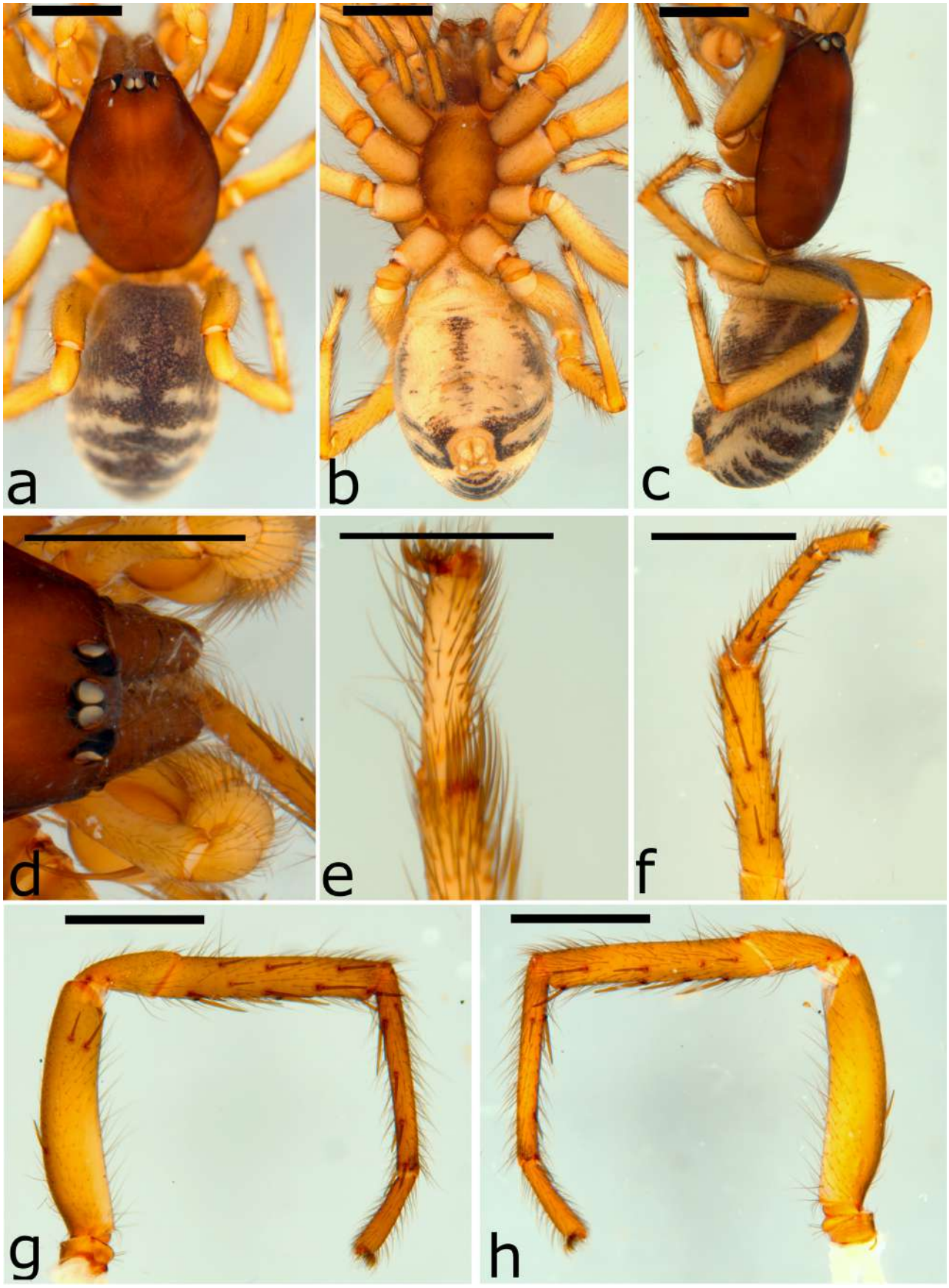

FIGURE 37. *Ariadna tigrina* **sp. nov.** ♂ holotype (TMAG J4139); Flat Rock (Tasmania); a habitus, dorsal view; b same, ventral view; c same, lateral view; d eyes, dorsal view; e left metatarsus IV, preening comb, retrolateral view; f left leg I, ventral view; g same prolateral view; h same retrolateral view. Scale bars a–h = 1mm.

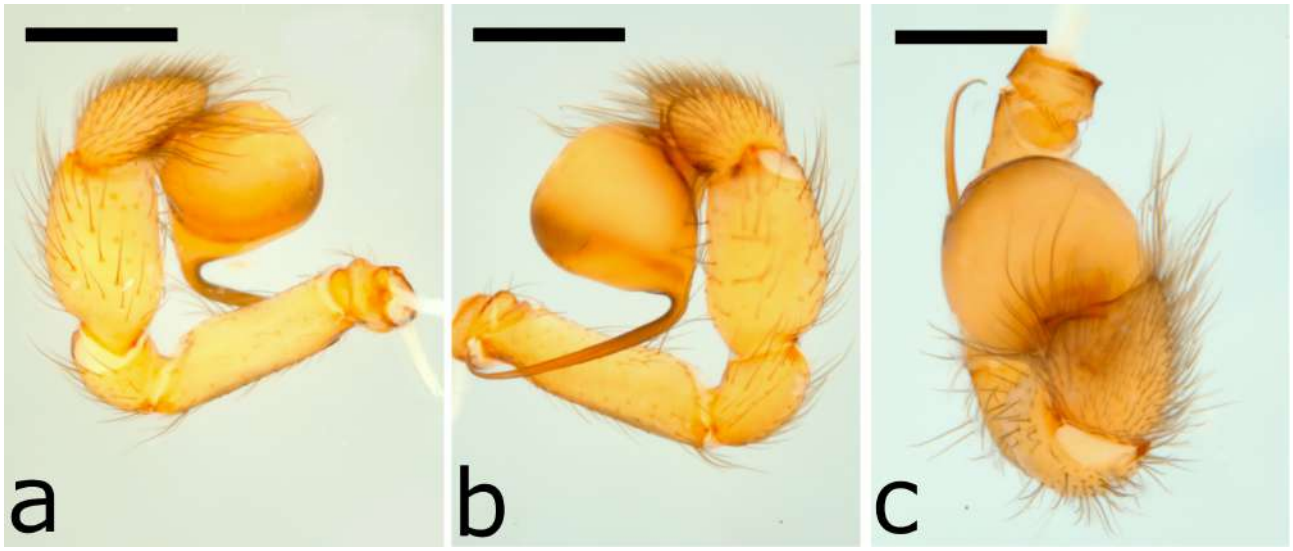

FIGURE 38. *Ariadna tigrina* **sp. nov.** ♂ holotype (TMAG J4139); Flat Rock (Tasmania); a left pedipalp, prolateral view; b same, retrolateral view; c cymbium and bulb, dorsal view. Scale bars = 0.5mm.

from *A. fragilis* **sp. nov.** by the pattern of macrosetae on leg I of the tibia and metatarsus of males (Fig. 37f–h cf. Fig. 20f–h) and by the curvature of the embolus, which is more strongly hooked in *A. tigrina* **sp. nov.** (Fig. 38a–c cf. Fig. 21a–c). *Ariadna thylacinus* **sp. nov.** is from the same type locality as *A. tigrina* **sp. nov.**, the two species can be differentiated by the shape of the pedipalp bulb, which is pyramidal in *A. tigrina* **sp. nov.**, but rounded oblong in *A. thylacinus* **sp. nov.**, by the shape of the embolus, which is fine, smoothly curved and hooked apically in *A. tigrina* **sp. nov.**, but is sinuous apically in *A. thylacinus* **sp. nov.** and by the pedipalp tibia, which is inflated in *A. thylacinus* **sp. nov.** (Fig. 38a–c cf. Fig. 35a–c).

Description. ♂ (based on holotype; TMAG J5354)**.** Total length 4.8.

Colour in ethanol: Carapace red-brown, with scattered sparse brown setae, border a darker brown, caput area bordered by darker red-brown striations; sternum yellow brown, with regular slightly darker inter-coxae patches, scattered long dark setae, maxillae and chelicerae orange brown labium brown; abdomen dorsally with about 9 dark grey, clearly defined chevrons, interspersed with pale cream, ventrally pale cream, with mottled and patchy dark grey median band. Legs yellow brown, with sparse dark setae (Fig. 37a–h).

Cephalothorax: 2.3 long, 1.7 wide, 1.4 high. Carapace rounded oval, narrowing anteriorly forming a neck, edges gently undulating and rebordered, fovea a shallow indentation (Fig. 37a); from lateral view carapace rising gently anteriorly, highest just posterior to eyes (Fig. 37c). Labium narrowed anteriorly, about ¾ length of maxillae; chelicerae with basal transverse ridge, retromargin with single tooth, promargin with three teeth; sternum oval, with large, defined precoxal triangles, larger posteriorly and with smaller, broadly triangular intercoxal extensions (Fig. 37b). Posterior eye row slightly recurved, eye group occupying 0.6 of carapace width (Fig. 37d).

Abdomen: 2.5 long. Covering of fine brown setae (Fig. 37a).

Legs: Leg length ratio I>IV>II>III. Leg I femur 1.8, patella 0.7, tibia 1.5, metatarsus 1.5, tarsus 0.7; Leg II femur 1.2, patella 0.7, tibia 1.0, metatarsus 1.2, tarsus 0.6; Leg III femur 1.3, patella 0.5, tibia 0.9, metatarsus 1.0, tarsus 0.6; Leg IV femur 1.4, patella 0.7, tibia 1.3, metatarsus 1.2, tarsus 1.5. Femur I slightly bowed in dorsal view. Tarsi I slightly bowed ventrally in lateral view, broader at apex than at base; tarsi II – IV similar, but less bowed or broad. Leg I femur d1-1/0-1/0, dp2ap*;* tibia p1-1-1, pv1-1-1-1-1ap, v1-1-1/0, rv1-1/0-1/0-1ap, r1-1-1-1*;* metatarsus p1, pv1-1-1-1ap, rv1-1-1ap, r1. Leg II femur d1, dp1ap; tibia p1-1-1, pv1-1-1ap, rv1-1-1ap, r1-1-1; metatarsu*s* p1, pv1-1-1-1ap, rv1-1-1ap, r1. Leg IV femur d1-1-1-1/0, dp1ap; tibia p1-1, v1-1-1ap; metatarsus v1, rv1-1-1ap, r1. Retrolateral distal preening comb with 7 spines, even in length (Fig. 37e). STC I, II with 9 teeth, ITC with long, thin tooth. Tarsi with sparse distal ventral scopulose setae.

Pedipalp: Pedipalp tibia about twice the length of the cymbium, cymbium with anterior prolateral extension, scopulose setae anteriorly; bulb rounded pyramidal in lateral view, embolus long, thin and hooked apically (Fig. 38a–c).

Description. ♀ (based on paratype; TMAG J5355)**.** Total length 6.9.

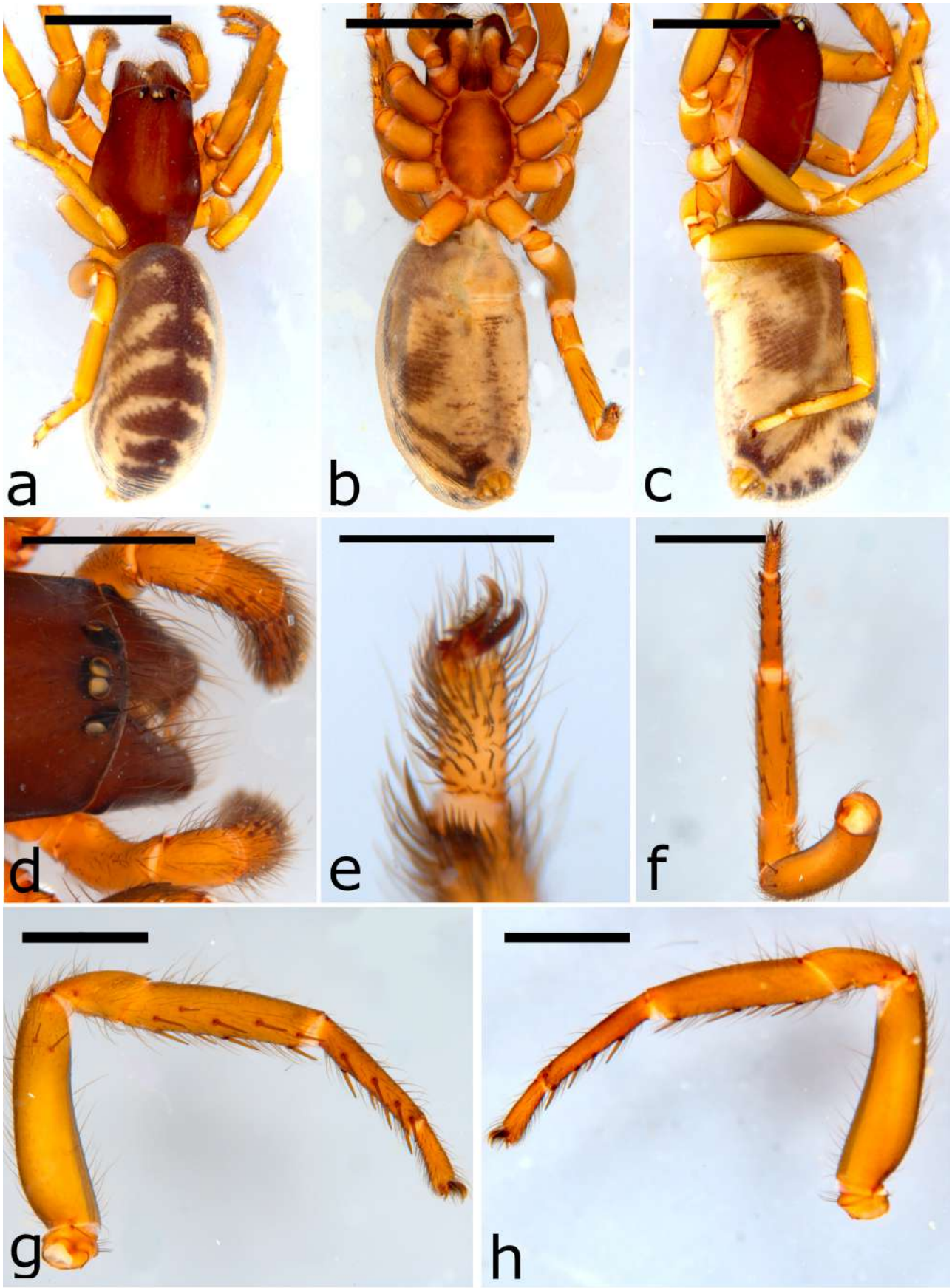

FIGURE 39. *Ariadna tigrina* **sp. nov.** ♀ paratype (TMAG J4139); Flat Rock (Tasmania); a habitus, dorsal view; b same, ventral view; c same, lateral view; d eyes, dorsal view; e left metatarsus IV, preening comb, retrolateral view; f left leg I, ventral view; g same prolateral view; h same retrolateral view. Scale bars a–c= 2mm, d, e = 1mm, f–h = 1mm.

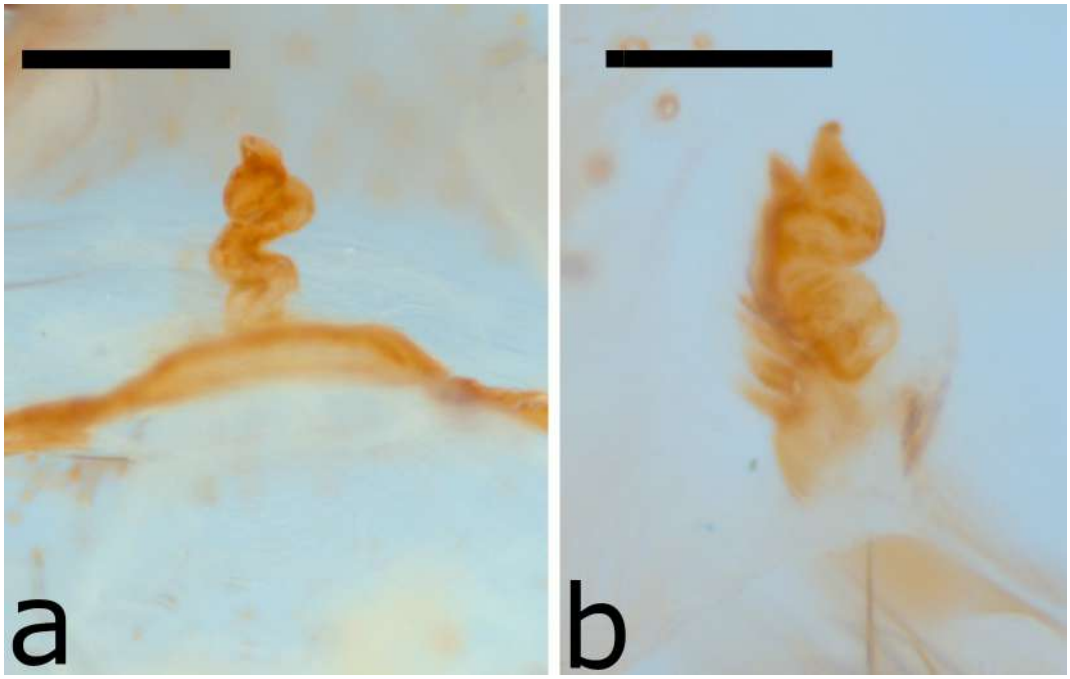

FIGURE 40. *Ariadna tigrina* **sp. nov.** ♀ (TMAG J4139); Flat Rock (Tasmania); anterior receptaculum a. ventral view; b. same lateral view. Scale bars=0.2

Colour in ethanol: Carapace reddish-brown, with raised lighter area at and anterior to fovea and with fine darker line around edges, sparse scattered setae, denser towards around eye group, sternum orange brown, paler medially, with regular slightly darker inter-coxae patches, with moderately long black setae, denser towards edges; labium dark red brown, paler apically, maxillae orange brown, paler apically, chelicerae orange-brown with dense, long, black setae; abdomen dorsally dark with eight dark grey, clearly defined chevrons, broader and connecting at mid-points, extending laterally and ventrally, interspersed with pale cream; ventrally cream with ill-defined, linear dark grey line centrally. Legs golden brown, legs I, II with dense setae, III, IV less dense (Fig. 39a–h).

Cephalothorax: 2.8 long, 1.8 wide, Carapace oval, with broad, square 'neck' anteriorly, anterior edge convex, laterally edges gently undulating (Fig. 39a); from lateral view carapace raised to fovea and then levelled until it lowers just posterior to eyes (Fig. 39c). Labium narrowed anteriorly, about ¾ length of maxillae; chelicerae broad, robust with basal transverse ridge, retromargin with single tooth, promargin with three teeth; sternum elongated oval with large, defined precoxal triangles, larger posteriorly and with small, rounded intercoxal extensions (Fig. 39b). Posterior eye row slightly recurved, eyes occupying about 0.5 of carapace width (Fig. 39d).

Abdomen: 4.1 long; with short, dense setae (Fig. 39a).

Legs: Leg length ratio I>IV>II>III. Leg I femur 1.9, patella 0.9, tibia 1.4, metatarsus 1.2, tarsus 0.6; Leg II femur 1.8, patella 0.6, tibia 1.5, metatarsus 1.1, tarsus 0.5; Leg III femur 1.3, patella 0.6, tibia 1.1, metatarsus 0.8, tarsus 0.5; Leg IV femur 1.8, patella 0.8, tibia 1.4, metatarsus 1.2, tarsus 0.6. Femur I bowed in dorsal view. Macrosetae*:* Leg I femur: dp2ap; tibia p1, pv1-1-1-1ap, rv1-1-1ap; metatarsus v2-2-2-2-1/2. Leg II femur dp1ap; tibia p1, pv1ap, rv1-1-1ap; metatarsus v2-2-2-2. Leg IV tibia v1-1, pv1ap; metatarsus v1, v1-1-1ap. Retrolateral distal preening comb with 7 spines (Fig. 39e). STC lef I with 9 teeth, ITC with small tooth. Tarsi with distal ventral setae.

Pedipalp: dense clusters of macrosetae prolaterally on tarsus and tibia. Scopulose setae on tarsus.

Genitalia: Anterior receptaculum sinuous in ventral view, bilobed (Fig. 40a–b).

Variation. Macrosetae of tibia and metatarsus I showed little variation between specimens examined for both males and females. Specimens showed some variation in colour, ranging from darker red-brown to lighter golden-brown, in darker specimens the transverse abdominal markings were less distinct, but still decipherable. Specimens showed little variation in size.

Distribution. Known from eastern Tasmania (Fig. 41).

DNA barcode. A 654 base-pair (bp) fragment of the mitochondrial (mt) DNA cytochrome *c* oxidase I (COI) gene (DNA barcode) was sequenced for specimen TMAG J4139 (see other material information above) and is de-

posited in BOLD (Process ID OZBOL2585-21) and GenBank (accession number ####). The base composition of the DNA barcode sequence is 22.17% A, 40.52% T, 13.61% C and 23.70% G (G + C = 37.31%).

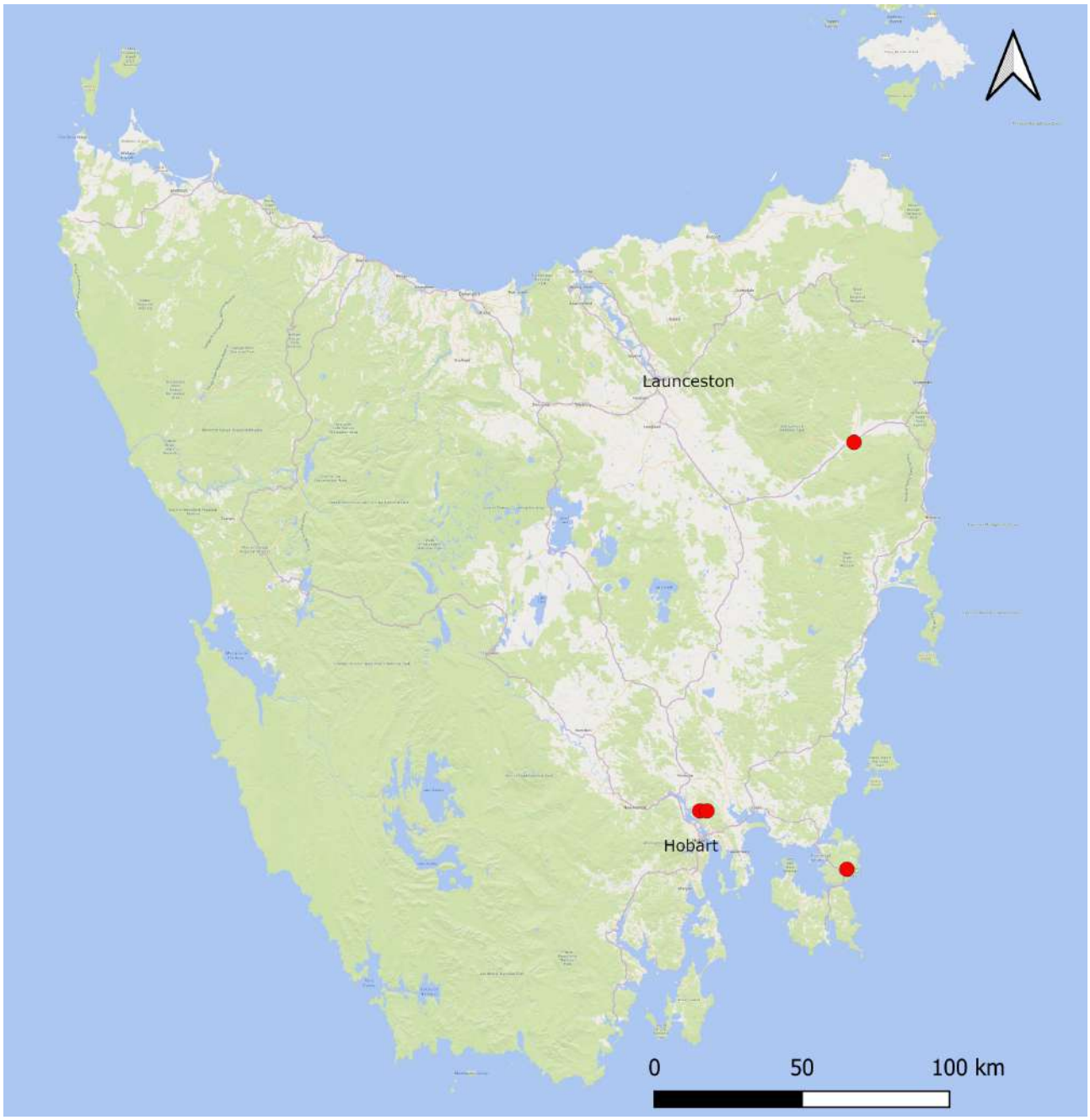

FIGURE 41. Distribution of *Ariadna tigrina* **sp. nov.** (red circle)

Discussion

This revision of Segestriidae increases known *Ariadna* diversity by 60% and provides modern redescriptions of two historically described species, *A. muscosa* and *A. segmentata*.

This revision is part of a more comprehensive treatment of all Australian Segestriidae and the type material of most species of the country were examined to ascertain that the species described from Tasmania have not been named previously.

Species described in this manuscript exhibit high levels of sympatry, with *A. abbreviata* **sp. nov**., *A. amabilia* **sp. nov.**, *A. thylacinus* **sp. nov.** recorded from Hobart; *A. crypticola* **sp. nov**. and *A. segmentata* from Bruny Island; *A. muscosa* and *A. segmentata* from Launceston; *A. thylacinus* **sp. nov**. and *A tigrina* **sp. nov**. from Flat Rock. Sym-

patry has previously been recorded in two species of South Australian *Ariadna* (Marsh *et al.* 2018).

Specimens resembling *Ariadna tangara*, originally described from Kangaroo Island (South Australia), were within the Tasmanian material (Kings Meadows, Launceston; QVM QVMAG QVM:2017:13:0229). However, it was difficult to unequivocally identify these specimens as *A. tangara* based on morphology as too little material was available to judge intra- vs interspecific variation, specifically considering the spatial distance of Kangaroo Island and Tasmania. Future molecular analyses are planned to determine the status of this complex of similar specimens, including material from mainland South Australia and Victoria. Also present in the material was a female from Pedra Branca, a small rock islet off the southern coast of Tasmania (TMAG J1658). It was not possible to unequivocally identify this specimen and molecular analyses are required for delineation of this species.

Seven of the species described in this study are known only from single collection localities, and whilst this is likely influenced by collecting effort, range restriction is frequent in the group (J. Marsh unpubl. data) and given the low dispersal ability of members of *Ariadna* (Beatty 1970), these species are likely of conservation concern. Much of the material examined in this study was collected pre-1950s, specifically as part of the arachnological studies of V.V. Hickman, and surveys to obtain fresh material from respective type localities and to show wider distributions are required to determine the current conservation status of these species.

Acknowledgements

We wish to thank Bush Blitz nature discovery program, Department of Agriculture, Water and Environment, for the funding to conduct this taxonomic revision and for the valuable material collected on its expeditions, grant number BNP-BSS-1920-002. Many thanks to John Douglas (QVMAG), Kirrily Moore (TMAG) and Graham Milledge (AM) for providing access to Tasmanian segestriid material. Sincere thanks also are given to Mark Harvey (WAM), Matthew Shaw (SAM), Robert Raven (QM), Nadine Dupérré (ZMH), Elise-Anne Leguin (MNHN) and John Douglas (QVMAG) for access to type material of Australian Segestriidae and for taking images of types when we were not able to examine them in person. Thanks to the reviewers of the manuscript, including Darrel Ubrick, for their very useful comments.

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